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Original Communications

MASSIVE DOSES OF DIGITALIS IN PNEUMONIA.

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Petresco,[1] in 1890, was one of the first to advocate the use of massive doses of digitalis in pneumonia. This radical departure from the accepted standards was met with but little approval by some of contemporaries, who asserted that large doses of digitalis produce toxic effects, influencing adversely the course of the disease, and, secondly, that digitalis in any dose has no beneficial therapeutic action in pneumonia. Apparently this attitude was not universal, because we find many European clinicians, among them Filk, Hetsch, Desourteaux and Monjain, and American clinics adopted this method of digitalis treatment. Those clinicians who have employed massive doses concurred in its beneficial effect in the progress, subjective symptoms and mortality in pneumonia.

Antony,[2] in 1892, reported results of this treatment in the Petresco clinic. They treated 1,031 pneumonia patients with only a mortality of 1.2 per cent. Although using, in severe cases, from 8 to 10 grams of the infusion of digitalis, up to 75 to 150 grams every hour, no cases of intoxication were observed. Beneficial effects were noticed 48, 36 and 24 hours after the first dose in lowering of temperature, resolution of the pneumonic process and alleviation of the subjective symptoms. In this country Bergen[3] and Hershey[4] were the most pronounced advocates. Bergen states that there is a prompt and permanent temperature decline, lessening of respiratory embarrassment and pulmonary pain, with decrease of cough. He advocates massive doses especially early in the disease, in the stage of congestion, basing the rationale of this treatment on physiological and pathological grounds.

The rapid strides made within the last few decades, especially in serum and vaccine treatment, obscured the methods employed by the older clinicians. With all due respect to the pneumococcus serums, we believe that some of the older remedies which have stood the test of clinical experience have a place in the therapeutic armamentarium.

The present scheme of digitalizing the heart with large doses of digitalis over a short time has demonstrated that there is little or no danger of a toxic effect. Recently, Linten[5] concluded that massive doses of digitalis increase the muscular efficiency of the heart, produce diuresis, loss of edema, and decrease the size of the liver. The employment of digitalis has been primarily to digitalize the heart in the eventuality of a failing cardiac function. However, repeated investigations have thrown some doubt on the toxicity of the pneumococcus toxins on the heart.[6] In fact, in an average case of pneumonia the cardiac muscle is not at all or little affected. Therefore, the statement so often made of whipping an already exhausted and failing heart does not hold true. Our method of digitalizing the heart is not primarily to combat possible cardiac failure, but to increase its muscular efficiency in pumping against a partly functionless lung, thus reducing its congestion, removing pneumonic products and bringing a greater number of leucocytes into the field of action.

The present communication is based on the study made during the "pneumonia season" of December, January and February, 1923, at the Saint Phillip Hospital, Richmond, Va. The hospital is devoted entirely to colored patients. The susceptibility of the colored race to pneumonia, and the toll the disease takes from its ranks, is well known. The patients, as a rule, do not come under observation of a physician until late in the disease when the pneumonic process has spread from one lobe to another, or involved both sides. It was not uncommon to find a patient with the lobe resolving, and another, on the same or other side, in the stage of engorgement. We dealt, therefore, in many instances with extreme conditions in lobar pneumonia where one part was undergoing resolution while another portion was actively

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diseased, and both were incapable of function. A good percentage of cases were further complicated by a coincident luetic infection which was far from enhancing the resistance to a new and virulent microorganism. We had an opportunity to observe these patients in the various stages of pneumonia under treatment of massive doses of digitalis and to compare the observations and results obtained with those where small doses or no digitalis was used. We were impressed by our good results and small mortality.

Upon admission of the patient and with diagnosis of pneumonia made, we immediately gave one drachm of the standardized tincture of digitalis, U. S. P., by mouth, and repeated the dose every four hours until 24 to 36 hours after defervescence occurred. This was our general plan which would be slightly modified, depending upon the individual case. We seldom resorted to subcutaneous or intravenous injections of any of the digitalis preparations. In very severe cases one drachm every three hours for 24 hours would be given. The total amount of digitalis given varied between eleven and twenty-six drachms, and the average time within which the drug was administered was 5 days.

An interesting observation from the study of our charts was made in regard to the ventricular rate which showed no change that was not consistent with the temperature curve. In other words, digitalis did not influence the rate, but increased the muscular power of the heart. This phenomenon was watched with the aid of the stethoscope and occasional cardiograms. Linten (*loco citato*) states that the improvement from digitalis is not due to the change in the ventricular rate, but probably to the increased muscular efficiency.

The physical signs showed rapid transitions and improvement, while the subjective symptoms were of mild character. The crisis in the average case arrived on the fifth day and there were no recrudescence or complications. One patient who had a toxic psychosis cleared up in two days. The greater percentage of our cases had a pneumococcus type II or IV with streptococcus and were, therefore, not very amenable to serum treatment.

We attempted to tabulate our cases in percentage ratios of deaths and recoveries, but we soon appreciated that it would not be a true representation of our results. Probably no two patients presented the same composite factors as to virility of the infection, the type of microorganism, the degree of pulmonary involvement, length of illness prior to admission, other coexisting diseases, age, etc. If we were to divide them into groups, we probably would have had as many divisions as we had patients. The inaccuracy of such a tabulation was made apparent to us. We have hence resorted to a general survey of our cases and are expressing herein the results of our observations, having taken into consideration each individual case.

We had not one fatality in our pneumonia cases where our method of treatment was given full play, with other things being equal. However, statistically we were charged with two deaths. The first patient was admitted at four o'clock in the afternoon and died at six o'clock the following morning. The second patient died suddenly on the fourth day after his admission. On entrance he had a temperature of 104.5 F., pulse 140, with the lower left and right lobes involved; total leucocytes 9,000, polys. 82 per cent. On the fourth day, the patient was seized suddenly with a paroxysm of dyspnea and was dead within a few minutes. The former patient was practically moribund on admission. The latter, with a poor resistance and severe infection as evidenced by the low total of leucocytes and high percentage of polys., died suddenly, probably from an intercurrent affection.

To recapitulate, we feel that massive doses of digitalis influence favorably the course of the disease, ameliorate the subjective and objective symptoms and conduce to the recovery of probably otherwise fatal cases.

We take at random some illustrative cases; the first two, being more interesting, are described in more detail.

Case 1.—E. V., colored, age 24. Onset of symptoms December 27th; admitted December 29th, with a temperature of 105.2° F., pain in the left chest and hemoptysis. Lower and upper left lobes were flat to percussion and bronchial breathing was demonstrated. Total white blood count—38,500, polys. 80 per cent. Blood culture sterile, Wassermann four plus. Sputum showed pneumococcus type four and streptococcus. Three days later the temperature went down to 100° and after 48 hours reached 99.2° F. and remained at the base line. The pulse rate on admission was 138; it vacillated with the temperature, going down to 80 with its decline and remaining there. She received nineteen and one-half drachms of the tincture

of digitalis during a period of seven days. She made a rapid convalescence and was discharged as cured.

Case 2.—J. H., colored, age 23. Onset of symptoms December 25th; admitted December 31st, with a temperature of 105.4° F., pulse 130, chills, severe cough, involuntary urination and delirium. The lower and middle right lobes were flat to percussion with bronchial breathing; the lower left lobe was dull and gave a bronchovesicular breathing. Total white count—16,600, polys. 72. Blood culture sterile, Wassermann four plus. Sputum showed pneumococcus type four and streptococcus. On January 2nd, the temperature dropped down to 99.2° F., pulse to 78, and remained on about that level. Her mental symptoms cleared up. She received eleven drachms of the tincture of digitalis in three days. She made a good convalescence and was discharged as cured.

Case 3.—S. Y., age 19, left lower lobe involved; temperature 102°—104°; pulse 125 throughout; leucocyte count of 1,200; ploys. 93 per cent. He received twenty-six drachms in seven days and made a splendid recovery.

Case 4.—O. R., age 22, middle and right lower lobes involved, temperature 104°, pulse 110; leucocytes 18,000. He received nine drachms of digitalis in four days. He had a concurrent syphilitic infection. He made a good recovery.

Case 5.—G. S., age 22, left lower and upper lobes involved; temperature 103.5° F., pulse 110; leucocytes 28,000, polys. 86 per cent. She received twenty-three drachms in seven days. She was discharged after a rapid convalescence.

Case 6.—M. J., age 32, middle and right upper lobes involved; temperature 105°, pulse 130. She received fifteen drachms of digitalis in six days, had her crisis on the fifth day and made a rapid recovery.

Case 7.—R. H., age 22, lower left lobe involved; temperature 104°, pulse 140; leucocytes 35,800. He received thirteeen drachms in three and a half days. He made a rapid recovery.

Conclusions

1. Digitalis may be used in massive doses without much danger of a toxemia.

2. Massive doses of digitalis are helpful in pneumonia and favorably modify the course of the disease.

3. Digitalis apparently increases the muscular efficiency of the heart without great effect on the ventricular rate, as seen in the apparently normal hearts of pneumonia.

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A SURVEY OF SOME OF THE PRINCIPAL GERMICIDES EMPLOYED IN THE MALE URETHRA.

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While preparing a recent article for the *Journal of Urology*, on "The Resistance or Fastness of the Gonococcus to Germicides,"[1] the author made a rather exhaustive study of the main chemicals employed as gonococcicides and thought that the profession might find a concise discussion of them both profitable and interesting. This would seem to be especially true with those practitioners who are only occasionally called into this field and who might wish to have the mind's eye cleared after the rather dazzling and immature publicity given some of the newer and more recent preparations.

Ever since the discovery of the gonococcus by Neisser in 1879, which was soon followed by a truer conception of its pathology, the rationale of treatment has had for its aim the following objects: (a) the restriction of the infection to a limited, superficial area; (b) the eradication of the gonococcus as quickly as possible with a minimum of damage to living tissue; and (c) the prevention of secondary infections on the site of the original implantation. We would be tempted to class any drug which could fulfil these requirements an ideal gonococcicide.

It is then in point to survey the properties sought after in the mythical ideal gonococcicide. As Frazier has pointed out,[2] the fact that an infinite variety of organic and inorganic preparations are being and have been tried out for the purpose of combating the gonococcus proves incontrovertibly that a suitable remedial agent has not yet been found which will uniformly relieve the pathology caused by that organism. Time has shown that the startling preliminary reports of some

of them have been but meteoric flashes on the therapeutic horizon. Candor and experience compel us to admit that the ideal has yet to appear. It is well worth while, however, to set down the requirements which the ideal must meet so that we may compare the agents employed at present with them.

This solution should be (a) toxic to the gonococcus, (b) non-irritating to human tissue, (c) penetrating to living tissue, (d) devoid of the property of precipitating albumen, (e) competent to dissolve pus and mucus, (f) possessed of the ability to promote a flow of serum from the infected surface, and (g) capable of stimulating the tissues to a quick return to normal after the gonococcus has been eliminated. This latter requirement will, of course, guard against secondary infections.

The foremost element of consideration in selecting a drug for use within the urethra should be that it is toxic to the gonococcus in a dilution which is well borne by the tissues of that structure. It is of importance then to know the killing power of the solutions we use. To determine this killing power, Swartz and Davis have worked out an ingenious scheme by which they arrive at what they term a "factor." This "factor" is obtained by dividing the concentration in which a drug will kill the gonococcus in the test tube in twenty minutes by the concentration in which it may be used with safety in the urethra. By means of this "factor," a comparative knowledge of the toxicity to the gonococcus of various drugs at our disposal may be gained.

BACTERICIDAL VALUE OF DRUGS AGAINST THE GONOCOCCUS IN WEAK SERUM

Drug	Strength Injectable In Urethra	Killing Strength Twenty Minutes	Therapeutic Factor 20 Minutes	Killing Strength 5 Minutes	Therapeutic Factor 5 Minutes
Meroxyl	1:200	1:80,000	400	1:40,000	200
Pot. Merc. Iodide	1:1,000	1:40,000	40		
Mercurophen	1:4,000	1:40,000	10		
Mercurochrome	1:100	1:16,000	160	1:4,000	40
Acriflavine	1:1,000	1:5,000	5		
Chlorazene	1:400	1:3,200	8		
Pota sium permanganate	1:2,000	1:2,000	1		
Argyrol	10%	1:800	80		
Cargentos	10%	1:800	80		
Silvol	10%	1:400	40		
Protargol	2%	1:400	8		
Phenol	2%	1:200	4		
Boric Acid		2 % fails			
Zinc Sulphate		1 % fails			

The Flavine Dye Group

The outstanding representative of this group is acriflavine. When it was first introduced in this country by Harrell and Davis,[3] it bade fair to become the foremost preparation in the treatment of gonorrhea. To the very great disappointment of the profession, it has by no means lived up to the splendid future expected of it. In fact, time has shown that its use is questionable.

That acriflavine possesses a high killing power toward the gonococcus is undoubted. By the Swartz and Davis method of computation, it has 600 times the strength of protargol in this respect. A desideratum in eradicating the gonococcus is the production of active phagocytosis. The author has noticed in the examination of hundreds of specimens, that acriflavine will inhibit this reactive nature process. It is not unusual to observe, after several injections of the dye, that the vast majority of organisms, which on the initial examination were intra-cellular, are now extra-cellular. It certainly does not stimulate phagocytosis. The reverse appears to be true. From this, it would seem that the drug relies entirely on its killing power *per se* for results.

Acriflavine is not as consistent a performer in the urethra as it was at first thought to be. It has proven to be far from reliable and uniform in its action. The deleterious after-effects seem to outweigh all the good it may accomplish. It is highly irritating in many instances. It has the much desired faculty of deep and rapid penetration of the urethral tissues, but it seems to impregnate them to such an extent with dye that they can not throw off the irritating effect of the drug. It produces an induration and hardening of the urethra which can not possibly be a beneficial happening. It devitalizes the living tissues so that they do not carry on the process of regeneration and repair. A chemical urethritis is frequently

set up while a mucinoid, quassi-purulent discharge of stubborn nature will often develop. It seems, also, to possess the regrettable faculty of producing stricture formation. This may be multiple and extensive. These contra-indications to its use are sufficient to utterly condemn it. In the opinion of the author, the newer preparation of neutral acriflavine has nothing to recommend it over the older form of the drug.

The Mercury Dye Group

The principal exponent is mercurochrome. It has even greater killing power than acriflavine. The strongest points which have been set forth in its favor are:

(1) It is comparatively non-irritating.

(2) It is quickly and deeply diffusible into living tissue.

(3) It is a non-toxic to the patient.

(4) It is highly toxic to the gonococcus.

Of all the recent additions to the therapeutic armamentarium this drug is the most promising. Its usefulness is not confined to the treatment of gonorrhea. In fact, its greatest value seems to lie in other fields. Employed as wet dressing or in a five or ten per cent ointment form it is splendid for cleaning up old wounds, impetigo (observation from use with author's children), ulcers and chancroids. Using a five per cent solution as a wet dressing, the author has unquestionably aborted two cases of incipient erysipelas. It vies with silver nitrate in lavage of the renal pelvis. It performs beautifully in infected bladders and is excellent for flushing the seminal vesicles through the vas deferens. Good results are obtained with instillations of the drug in chronic urethritis.

The bi-chloride and oxy-cyanide of mercury have, up to this time, been chiefly relied upon to prevent secondary infections in the urethra following gonorrhea. Mercurochrome is more acceptable to the patient than either of these and may replace them both in this respect. This fact has not been fully determined.

The author has done complete circumcisions in gonorrheal phimosis cases instead of the usual dorsal slit and, by using a one per cent solution of mercurochrome as a dressing, has obtained routine primary union without infection.

Eye, ear, nose and throat specialists are gravitating to the drug and report excellent results from its use, both in acute and chronic infections in their field. But they find it so highly irritating in some instances that its continued use is contra-indicated in those susceptible individuals. Land[4] has noticed that those patients who seem to be most intolerant to mercurochrome belong to the blond type. This intolerance is rather unusual, however, and it does not interfere with the routine use of the drug in ear and throat work.

For the routine treatment of acute and subacute gonorrhea, mercurochrome is inferior to potassium permanganate and probably to the synthetic silver derivatives also.

Young[5], in his fair, analytical, conservative preliminary report on the drug, records 100 cases of acute gonorrhea in which the gonococcus disappeared in an average time of eighteen days. He states that he has not found the drug vastly superior to other gonococcicides and that, in a few of the infections, it seemed to be inferior to some of the other preparations.

The writer finds two objections to it in this class of patients. (a) Its bactericidal effect is fugacious. In mercurochrome, we find the quality of tissue penetration developed to a greater extent than in any other preparation at our disposal. The pink color may be noticed in the expressed secretions from the prostate and vesicles days after the drug has been instilled into the posterior urethra. This does not mean, however, that the solution has maintained its sterilizing property all this time or that the drug is immutable when the human tissues serve as a repository. The writer believes that the staining quality of the drug outlasts, by far, its sterilizing quality. This is the reason for the belief. To be really efficacious in controlling urethral discharge and bacterial multiplication, mercurochrome should be used several times in each twenty-four hours. A quite mild solution injected four or five times a day serves a better purpose still. Should only one injection be used, the discharge is held in check but a few hours, immediately following the application. Then the discharge will begin to increase again; but it will be stained and easily detected, dirty red, while gonococci, whose multiplication seemed to be inhibited shortly following the treatment, will reappear in great numbers. Thus, the staining quality is still in evidence while the killing power seems wanting. It is difficult to conceive otherwise, than that the drug maintains its coloring peculiarity after the killing power is neutralized or rendered inert. The

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color index is not a reliable killing index. To maintain a permanent killing effect, the drug must be used at such short intervals that it may prove quite irritating.

(b) The second objection is directed toward the prolonged or continuous use of mercurochrome in the urethra. As has been said before, the dye penetrates the tissues quickly and deeply. This should assure a deep killing action, which is of course, to be desired. But this very property, if the drug is applied to the urethra over an extensive period, seems to act as a devitalizer to the tissues and then there occurs an injurious chemical reaction similar to that observed with acriflavine. Perhaps it may be that all dye germicides possess a common drawback in this respect. It is highly advisable to keep the patient under close surveillance during continuous urethral medication with mercurochrome.

The writer has not found mercurochrome more uniformly irritating to the urethra than any other chemical of high killing potentiality. It is not contra-indicated in acute conditions, if its effect is closely observed. The hematuria, strangury and tenesmus of hyperacute posterior urethritis may be, at times, amazingly and almost instantaneously relieved by one treatment with it.

Summing up the drug, I should say that it is inferior to potassium permanganate and the silver synthetics in the routine treatment of acute and subacute gonorrhea; but that it is probably the most generally useful of all preparations when the various pathology, encountered in urology, is broadly considered.

Potassium Permanganate

Potassium permanganate continues to hold the premier position as the most consistent and reliable gonococcicide. It has stood the test of time better than any other chemical. Why its effect in Neisserian urethritis is so beneficial is not clearly understood. At first, it was thought that rapid oxidation within the urethral canal liberated a sufficient quantity of oxygen to impair the vitality of the pathogerm. The gonococcus is anaerobic, i. e., it will not live in the presence of oxygen. This belief was discarded when it was shown that the urethra could be inflated with oxygen in the pure state without the organism, growing there, being discommoded.

The killing power as a germicide is not responsible for its effect for the simple reason that its bactericidal property is the weakest of all. When factored by the Swartz and Davis table, this property, in the solution strength employed, is almost nil.

When the irrigation method first came into vogue, a concentration of the drug as low as 1-500 was advocated. In this concentration, it was truly irritating and patently astringent. According to Gabritchevsky, strong solutions are negatively chemiotactic while weak solutions are positively chemiotactic to leucocytes. Whatever the reason for it, experience has taught that decidedly better effects are obtained with weak solutions, so that at present solutions ranging in strength from 1-5,000 to 1-10,000 are preferred. In moments of unthinking exasperation, when we run across a perverse, recalcitrant infection, we have perhaps been tempted to give the gonococcus hell with strong solutions. Nothing could be more detrimental to the patient than to yield to this impulse.

Thus we see that neither oxidation, astringent action nor bactericidal power is the quotient which produces results. Nevertheless, potassium permanganate is highly inhibitory to the activity of the organism. It is probable that, if the men who treat gonorrhea were limited to the choice of one drug, the majority would select permanganate.

The universally approved method of employing the chemical is by hot, copious, dilute irrigations. The lavage serves to flush out the pus and mucus which collect in the urinary passage, thus acting as a medium of artificial drainage. The drug coming in contact with the mucosa induces a transient, fugacious oedema, while the heat of the solution promotes a salutary hyperemia. This cleansing, by liberating the outlets from impediment, permits the escape of inflammatory products from the deeper urethral structures.

We concede that these qualities of potassium permanganate constitute themselves staunch allies to nature in her effort to throw off the abhorrent infection. But this does not entirely satisfy the mind as to the intransient antagonism of the drug to the gonococcus. Frazier styles its bactericidal action as an "unknown quotient" and lets the matter rest there. The combinaton of the action of the drug, plus the effect of the copious, cleansing irrigation, recommends itself as the most acceptable and uniformly efficacious method of treating the dis-

ease—empyrical, if you please, but effective none the less.

Zinc Permanganate

Dilute irrigations in strength of 1-8,000 are quite useful as alternates to potassium irrigations when the gonococcus develops an undue resistance to the latter solution.

Oxy-Cyanide of Mercury

Solutions of oxy-cyanide of mercury in strength of 1-8,000 appear to be the best weapon with which to combat secondary infections. They are quite valuable in the very late stage of gonorrhea and are not intensely disagreeable to the patient. Care must be exercised to employ quite dilute solutions.

Silver Nitrate

This is a cruel drug. The writer knows of no way in which the required strength may be employed which will eliminate the irritative quality. It is highly astringent and will coagulate superficial albumen. For this reason, it is supposed to have only a relatively superficial action. Polite scepticism may be expressed regarding this. The results following the application of silver nitrate in pyelonephritis and in provocative therapy to the urethra and prostate would indicate that the penetration is considerable. The chemical is of decided value in drying up the sodden mucosa of chronic urethritis and in hastening a return of the tissues to normal.

Organic Silver Compounds

Like their doughty parent, these synthetic derivatives are powerfully astringent and coagulate superficial albumen. They have been employed more extensively as prophylactics than any other class of drugs. Their use is advocated in the early stages of the disease when the gonococcus is superficial and easily accessible. They cause a pronounced local hyperemia and promote a free exudation of serum which encourages active phagocytosis.

Requirements of rational treatment contraindicate their use after the disease has established itself on the grounds that they do not penetrate as the gonococcus penetrates, are astringent, precipitate proteins and coagulate the superficial exudates, thus interfering with natural drainage. But, the treatment of gonorrhea is not altogether based on rationale. Experience teaches that it is not always prudent to do this. We find that the recorded results of many practitioners justify the use of such organic silver preparations as argyrol. protargol, cargentos, silvol and albargin in the later as well as in the early stages of gonorrhea. Examination, at autopsy, of kidney tissue after pyelography with argyrol shows that this substance does quite noticeably penetrate the living tissue. While no claim has ever been made that they are as penetrative and diffusible as the chemical dyes, we are not altogether justified, as experience has shown, in condemning their use because, theoretically, they are non-penetrating. They have accomplished altogether too much good for a prudent man to do this.

This brief survey touches upon the main classes of remedial agents employed today in the treatment of gonorrhea. In one form or another they constitute the base of anti-gonorrheal therapy. The action of none of them is uniform either at the beginning of treatment or later on in the disease. The truth of the matter is that this disease is everlastingly perverse and variable. Infections, which evidence practically parallel clinical symptoms when subjected to exactly the same treatment, will by no means respond alike. There is no gainsaying the statement that each case devolves itself into a separate clinical entity which demands individual attention. In no other way may good results be expected.

The writer has advanced the contention[1] that the gonococcus becomes fast or resistant to germicides employed locally. This fastness may develop to a degree in which the application of the drug is worse than useless. A shift to different drugs will doubtless bring the infection under control again.

Syphilographers recognize a proclivity of the spirocheta pallidum to become highly resistant or fast to either mercury or arsenic when either is or both are injected over a considerable period. For this reason the alternate use of the two is advocated.

We read of cases of gonorrhea which "hang fire"[6] or cases which do beautifully under a certain drug for eight or ten days and then run wild.[7] This has been the experience of every practitioner who treats any number of these cases. We can not always attribute this happening to the failure of the patient to live up to his treatment regimen for, in many instances, he has not ceased to comply strictly with instructions. There is food for serious

thought here. No explanation serves to answer the situation question so fully as that the fault lies neither with the strength nor purity of the solution used nor with a laxity to treatment rules on the part of the patient; but to a defensive ability, inherent to the gonococcus, which enables it to build up a resistance or fastness potential enough to render the killing power of the drug impotent. A prompt shift to another germicide will catch the organism off guard and perhaps be fatal to it. To the writer, the most important element of rational treatment would seem to be that the practitioner should be primarily alert for symptoms of the development of this untoward resistance to germicides and then continue to batter the gonococcus with chemicals against which it has not had time to establish a defense.

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Since writing this article, I have run across several acute and distressing case reminders that the frequent, continuous, unsupervised use of mercurochrome within the urethra may play havoc with that structure. I notice that Dr. Davis has risen up in defense of the wholesale condemnation of acriflavine. (*Journal of Urology*, January, 1924, pp. 37-38). Since treating his original series of cases at the time he introduced the chemical into this country for the treatment of gonorrhea, he finds that instead of the 1-1,000 solution in distilled water, it is better to use a 1-8,000 solution in normal saline. In this dilution he asserts that acriflavine will probably prove to be the drug of choice in the treatment of acute anterior gonorrheal urethritis. I sincerely trust that he is right. He possesses keen judgment and is an astute observer. I hope, too that I am wrong; but I am very firmly of the opinion that any germicidal dye used continuously within the urethra, at the short intervals demanded in gonorrheal therapy, may prove to be a devitalizing, cicatricial curse. It is certainly incumbent upon the urologist to be keenly observant of the after effects of these dyes so that we may soon know what to expect from their use.

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GASTRO-INTESTINAL AND OTHER DISTURBANCES ASSOCIATED WITH FISSURES AND HEMORRHOIDS.*

By G. REESE SATTERLEE, M. D., New York, N. Y.

My reasons for selecting this subject were not because of anything new but because of the frequent slips in diagnosis, resulting largely from the physician neglecting the examination of the rectum as a routine procedure. Our teachers in surgery said the same thing. Drs. Robert F. Weir and William T. Bull frequently emphasized this point. We, their students, are among the first to neglect this advice. It is a very simple procedure and occupies as little time in examination as almost any other locality in the body. If in all cases of chronic intestinal invalidism, the mouth and rectum alone were examined and proper treatment of these two parts of the body instituted. it is safe so say that further search in a large percentage of instances would be unnecessary. The frequent absence of symptoms referable to the rectum, the fear of rectal operation and sometimes a sense of shame or reticence which may create a shyness of the patient for examination of this region of the body; these three factors from the patient's standpoint may account for omitting the rectal examination.

Hemorrhoids may cause trouble in various ways; first, by direct irritation giving discomfort, fullness, itching and at times bleeding and pain. The pain is most often due to a fissure. Second, by reflex disturbances through the gastro-intestinal tract notably constipation, flatulence, distention, nausea and at times vomiting. Third, by absorption of bacterial products from infected areas in the crypts or deeper tissues of the rectum. Absorption of these bacterial products may alone cause systemic disorders similar to those from infected tonsils. This condition may occur without local rectal symptoms just as infected tonsils may occur without local irritation. These cases of proctitis are very frequently associated with foci of infection in other parts of the body especially in the mouth such as infected tonsils and teeth. In women it is often associated with cervicitis. Proctitis is often present with other foci in the gastro-intestinal tract, such as ulcers, cholecystitis, chronic appendicitis, colitis, etc.

The subjective symptoms of rectal lesions are extremely interesting and often difficult to

*Presented before The American Gastroenterological Association, Atlantic City. May, 1924.

explain. They are lassitude, nausea, somnolence, vague fears, indefinite pains and numerous nervous phenomena,—the so-called neurasthenia; or even mild psychosis. Some of these symptoms can be attributed to the absorption of septic products and others to mechanical irritation. When the patient suffers from absorption of septic foci, there is present a toxemia rather than a bacteriemia. Whatever the explanation of the symptoms in focal infection is, the fact remains that the symptoms subside when the foci are removed. Local or referred pain from hemorrhoids or from fissures is another important factor in explaining nervous phenomena.

Case No. 4296 illustrates the amount of nervous depression and irritability due largely to a small rectal lesion, slight hemorrhoids and proctitis of a limited extent. The case also demonstrates the very frequent concomitance of other focal infections in the body and the necessity of complete removal of all foci.

Objective Sysmptoms: Here probably we have reflex disturbances principally, but they may be also toxic from focal infection or secondary to the constipation or other abdominal conditions. Some of the symptoms of the patients here reported are:—gnawing sensation in epigastrium, flatulence with irritations, coated tongue. See case 5114 (Hemorrhoids, tight sphincter, infected teeth). Not infrequently the symptomatology resembles closely that of duodenal or peripyloric ulcer. The physical signs closely follow the classic symptoms of ulcer in this region. The symptoms however are usually intermittent when the lesion is extragastric. Another example illustrating mistaken diagnosis is the following case seen during the annual meeting of the American Medical Association at St. Louis in 1922. (No serial office number).

Severe vomiting with abdominal cramps, flatulence with or without distention are characteristic symptoms of disturbance of small intestine function due frequently to rectal irritation. Cases 5173 and 5084 are illustrative of this type. It is difficult to select patients with simple uncomplicated hemorrhoids or fissures, as experience shows there are nearly always some other pathological lesions.

Comparative Anatomical Considerations: Constipation with hemorrhoids or fissures may be explained on the theory of interference with Keith's neuro-muscular sphincters. An irritable focus at any one of these nodal points —as in the anal sphincter region—may send impulses through the splanchnic nerves, which communicate with the remaining sphincters in the large and small intestine and thus block peristalsis. This may be followed by atony of the intestinal wall. The connection between the centres namely (a) anal, (b) pelvic colon and rectal, (c) transverse colon, (d) ileocecal, (e) duodeno-jejunal function, (f) duodenal and, perhaps, (g) the cardiac sphincter can be sometimes demonstrated by radiographic examination of cases with rectal lesions. These anatomical structural lesions are in keeping with the symptomatology.

Referred pain is described by Head,[1] "When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility, the pain is referred to the latter rather than to the former, although the stimulus actually arose there."

As Hurst[2] says, the viscera are insensitive, but pain may arise from peritoneal irritations and from tension on the fibres of the muscular coat of the alimentary canal. All pain must be referred on account of the scantiness of the afferent fibres in the viscera and their defective power of localizing internal sensations.[3]

The segmental arrangement of the primitive vertebrate still persists in the skin (dermatomes) and muscles (myotomes).

The rectum and colon are directly connected with the inferior mesenteric ganglion which in turn is connected with the 11th and 12th dorsal and 1st and 2nd lumbar spinal centres. The stomach and small intestine are connected through the solar plexus with the 11th and 12th dorsal spinal centres. Thus, there is intimate connection of the rectum, colon, small intestine and stomach through the sympathetic system.

Case Histories

Case No. 4296. Female. Age 46. *Diagnosis*: Dental infection, chronic maxillary sinusitis, hemorrhoids, proctitis, infected tonsils, nasal obstruction. *Symptoms*: Principally disturbances of the nervous system, depression, irritability, nervousness, some abdominal pain and headache. *Treatment*: First removal of dental infection and curetting of both antra. Later hemorrhoidectomy and removal of infected crypts. This was followed in six months' time by tonsillectomy (very slight infection), and submucous resection. *Result*: Abdominal pain subsided and much relief from nervous symptomatology. These re

sults could be immediately traced to the rectal operation.

Case.—Physician from Texas. (No serial number). *Symptoms*: Epigastric pain, nausea, indigestion, gas and constipation. Patient had been studied in Texas previous to my consultation. Radiographic studies showed a spasm of pylorus with some irregularity in the duodenal cap. He had had several consultations with well known physicians present at the American Medical Association meeting in St. Louis. The diagnosis had been variously called duodenal ulcer, cholecystitis or appendicitis. No examination of the rectum had been made. On questioning the patient about rectum condition, he acknowledged sadly that he had a very bad rectum but had not cared to disclose it. Examination of rectum showed a very extensive hemorrhoidal condition with fissures so severe that digital examination would have been cruel. *Treatment*: Hemorrhoidectomy in his home town resulted in a complete relief of symptoms.

Case No. 5173. Female. Age 27. *Diagnosis*: Infected cervix, hemorrhoids. *Symptoms*: Nervous, apprehensive, irritable, poor sleep, no energy. Bilious attacks with vomiting as prominent feature. Much gas, constipation, backache. X-ray; terminal iliac stasis. Previous appendectomy. *Treatment*: Hemorrhoidectomy. Cervix enucleation. *Results*: Good. Abdominal section avoided.

Case No. 5084. Female. Age 38. *Diagnosis*: Migraine (inveterate headaches), constipation, infected teeth, infected tonsils, infected cervix, hemorrhoids and fissures. *Symptoms*: Attacks of extremely severe headache, vomiting, vertigo, palpitation. No local rectal symptoms. *Treatment*: Hemorrhoidectomy and posterior section of sphincters with other more serious operations, resection of colon, tonsillectomy, dental extraction, enucleation of cervix. *Results*: Very satisfactory. Constipation cured.

Case No. 5114. Male. Age 31. *Diagnosis*: Hemorrhoids, tight sphincter, infected teeth. *Symptoms*: Gnawing sensation in stomach, gas, coated tongue, dizziness. *Advised*: Hemorrhoidectomy. No action.

Case No. 4038. Female. Age 37. *Diagnosis*: Fissures, hemorrhoids, former enucleation of cervix and tonsillectomy. *Symptoms*: Abdominal pain and rigidity on right lower quadrant, headaches and bilious attacks for fourteen years, vomiting and severe pain. *Treatment*: Hemorrhoidectomy followed by improvement.

Case No. 4583. Female. Age 41. *Diagnosis*: Hemorrhoids, infected cervix with cysts, infected teeth. *Symptoms*: Constipation, rectal pain, malaise and depression. *Treatment*: Hemorrhoidectomy and enucleation of cervix and removal of all foci. *Result*: Complete recovery.

Case No. 5378. Male. Age 72. *Diagnosis*: Hemorrhoids, duodenal ulcer, prolapse of rectum. *Symptoms*: Indigestion thirty years. gastric-acidity with soda habit. Epigastric pain. Constipation. Prolapse of rectum. *Treatment*: Operation 1918, posterior gastroenterostomy for duodenal ulcer. August, 1923, hemorrhoidectomy, sphinctotomy. At that time symptoms were sluggish digestion, precordial distress, irritability, gas and constipation. *Result*: Relief of symptoms.

Case No. 5182. Male. Age 60. *Diagnosis*: Internal and external hemorrhoids, tertiary syphilis. *Symptoms*: Burning sensation in intestine, much flatulence, severe constipation, mass in rectum, painful urination, bad dreams, excessive saliva. Examination showed severe internal hemorrhoids which protrude and in danger of strangulation. *Advised*: Operation and declined.

Case No. 5042. Female. Age —. *Diagnosis*: Hemorrhoids, perirectal inflammation. Also pericolitis membranitis, infected teeth, chronic maxillary sinusitis and osteomyelitis. *Symptoms*: Constipation, gas, headaches. Hemorrhoids strong contributing factors. *Treatment*: Hemorrhoidectomy and sphinctotomy. *Results*: Much improved.

Case No. 5450. Male. Age 25. *Diagnosis*: Neurasthenia, hemorrhoids, impacted wisdom tooth, nasal obstruction. *Symptoms*: largely mental. Haziness, dizziness, drowsiness, depression and exhaustion. Low blood pressure. Spastic constipation originating in rectal sigmoid region as shown by radiograph. *Treatment*: Removal of impacted tooth. Hemorrhoidectomy and sphinctotomy. *Result*: Improvement.

Case No. 4086. Male. Age 27. *Diagnosis*: Hemorrhoids and fissures. Proctitis. Previous appendectomy. *Symptoms*: Bilious attacks, headaches during attacks, constipation. Pain in rectum. Examination of stomach contents was normal. *Treatment*: Hemorrhoidectomy, sphinctotomy, excision of crypts. *Result*: Complete recovery.

The following is a report on the roentgenological studies by Dr. Redford K. Johnson: The X-ray findings in diseases of the rectum and anal canal are as yet distinctly secondary in importance to the actual physical demonstration of the lesion by means of the proctoscope, and it is doubtful whether the priority of the latter method ever will be challenged seriously by the roentgenologist. However, the many cases which come to the roentgenologist without having had preliminary rectal examinations should serve to put him on guard, to the end that he may avoid the common error of rendering, on the one hand, a negative diagnosis where actual gastro-intestinal pathology is present, and, on the other hand, a positive diagnosis of a lesion which either does not exist or is secondary to a lesion which he has not discovered. The most frequent sequela of rectal pathology, benign or otherwise, is constipation, and to the roentgenologist this appears as a total colon stasis of the recto-sigmoid type. The simple lesions, such as hemorrhoids or anal fissures, seldom produce local X-ray manifestations of interpretive value, but they are the frequent cause of many remote and at times obscure signs which, while subject to accurate interpretation, are sometimes ignored. These signs include total colon stasis together with spasm of the various sphincters, notably the anal and recto-sigmoid. Spasm of the ileocolic sphincter is probably less frequent but, when present, may result in the occurrence of severe epigastric symptomatology. Moreover, the ileac stasis caused primarily by spasm is usually aided and abetted by the colon stasis, so that in the end we may be confronted with such constant and severe epigastric symptomatology as to make us feel certain that we are dealing with a lesion of the appendix, duodenum or stomach. Such cases as these are the ones which usually come first to the roentgenologist, and, unless he resists the temptation to make the obvious diagnosis as suggested by the symptoms, without properly correlating and interpreting his X-ray *facts*, the patient's abdomen is likely to be opened, and failure, if not disaster, will be the result.

Conclusions

1. Rectal disease is frequently present when unsuspected because of absence of local symptoms.

2. General systemic conditions may be caused or aggravated by hemorrhoids and fissures.

3. The symptomatology is often obscure.

4. Hemorrhoids and fissures are usually accompanied by other lesions, especially focal infections in the mouth.

5. Necessity of rectal examinations as routine procedures and proper interpretation and treatment of even small rectal lesions.

References.

(1) Head H.: Brain, 1896. Vol. XIX, p. 153.

(2) Hurst, A. F.: "The Sensibility of the Alimentary Canal," Oxford Medical Publications, 1911.

(3) W. Langdon Brown: "The Sympathetic Nervous System in Disease," London, 1920.

9 *East 40th Street.*

A MODERN TREATMENT OF ESOPHAGEAL STRICTURE DUE TO LYE BURN.*

By A. A. BURKE, M. D., Norfolk, Va.

Until a very recent date when we encountered a case of esophageal stricture due to lye burn we have felt practically at a loss to know what to do for it. Every method adopted was unsatisfactory and my experience, together with that of others in this vicinity, has been that death has resulted eventually in all cases. With the advent of the bronchoscope and the esophagoscope we have been able to accomplish many things which, heretofore, have been impossible.

The method which I adopted in three cases of esophageal stricture was the procedure of using retrograde esophageal bougies. What is stated regarding one case pertains to all three, as the history, general condition and treatment were similar.

History

A child, age two years, swallowed lye about two weeks prior to admission to hospital. For the last two or three days the mother had noticed that the child had been unable to retain any solid food, and frequently was unable to retain liquids. Sometimes the food was vomited immediately after it was swallowed, and then, again, it remained in the esophagus for from five to fifteen minutes before it was vomited. There had been a gradual loss of weight.

Treatment

An effort was made to pass the smallest esophageal bougie, but without success. The esophagoscope was then used, and by direct method of esophagoscopy the stricture was di-

*Read before the Seaboard Medical Society, Newport News, Va., December, 1923.

lated enough to allow the smallest bougie to pass. After the bougie was passed through the stricture the procedure was then as follows: A gastrostomy was done by a general surgeon, who tied a string on the bougie. This string was pulled back through the stricture into and out of the mouth. This now left a string, one end of which was at the gastrostomy wound, and the other end at the mouth. The next step was to tie the smallest retrograde esophageal bougie, which had a looped string on each end. This bougie was in turn tied to another bougie of slightly larger size, and so on, until size 24 or 26 had been drawn through the gastrostomy wound and out of the mouth. The gastrostomy wound was left open for a week. After 24 hours the esophageal bougies were passed through the mouth every day for two weeks, then every other day for a month, and then twice a week for six months.

There may be some criticism of the rapid dilatation of the stricture, but in the three cases which I have had, there has been no indication that this method should not be adopted, as all three cases recovered and are taking nourishment without any regurgitation of food.

The interval which has elapsed since the cases were operated upon has been a year in one case, and eight months in the other two.

Flat Iron Building.

THE SHAME OF MODERN MEDICINE: GETTING OUR POST-GRADUATE EDUCATION IN PHARMACOLOGY AND THERAPEUTICS FROM THE PROPAGANDA OF THE PROPRIETARY DRUG HOUSES.

A Plea for a More General Study of the Fundamental Principles of These Sciences by the Members of the Medical Profession.*

By FREDERICK R. TAYLOR, B. S., M. D., High Point, N. C.

I wish to take for the text of this paper a passage from Osler's chapter on The Treatment of Disease in the *Oxford Medicine*, Vol. I, pp. 702-3. It runs as follows:

"Each generation has its therapeutic vagaries, the outcome, as a rule, of attempts to put prematurely into practice theoretical conceptions of disease. *As members of a free profession we are expected to do our own thinking;* and yet the literature that comes to us daily indicates a thralldom not less dangerous than the polypharmacy from which we are escaping. I allude to the specious and seductive reports sent out by the pharmaceutical houses, large and small. We owe a deep debt to the manufacturing pharmacist, who has given us pleasant and potent medicines in the place of nauseous and weak mixtures; and such firms as Parke, Davis and Co., of the United States, and Burroughs and Wellcome, of England, have been pioneers in the science of pharmacology. But even the best are not guiltless of exploiting in the profession the products of a pseudoscience."

Osler then goes on to give three items in which the manufacturing drug houses have gone too far: first, in pushing organotherapy beyond a sound scientific basis; second, in overpraising their products; and third, in usurping the functions of the teachers of pharmacology in the schools. He closes his paragraph with these significant words:

"For years the profession has been exploited in this way, until the evil has become unbearable, and *we need as active a crusade against pseudoscience in the profesion as has been waged of late against the use of quack medicines by the public.* We have been altogether too submissive, and have gradually allowed those who should be our willing helpers, to dictate terms and play the role of masters. Far too large a section of the treatment of disease is today controlled by the big manufacturing pharmacists, who have enslaved us in a plausible pseudoscience. The remedy is obvious: Give our students a first hand acquaintance with disease, and give them a thorough practical knowledge of the great drugs, and we will send out independent, clear-headed, cautious practitioners who will do their own thinking and be no longer at the mercy of a meretricious literature which has sapped our independence."

Who are, or ought to be, our students? *Every single one of us!*

A rather amusing incident occurred to me in 1919. I had graduated in medicine some six years previously. I was sitting in a reception room shared by Dr. D. A. Stanton and myself, reading a book. A man came in to see Dr. Stanton, who happened to be out at the time, so he sat down to wait, and something like the following dialogue ensued:

*Read before the Section on Chemistry, Materia Medica, and Therapeutics of the Medical Society of the State of North Carolina, Raleigh, April 15th, 1924.

Man, rather patronizingly, "You are a medical student?"

Answer, "Yes, Sir."

Man, "Reading medicine in Dr. Stanton's office, I suppose?"

A. "Yes, Sir."

The conversation then drifted into other channels. In a few moments another physician came in and spoke to me in such a way that it was obvious to the man with whom I had been conversing that I too was practicing medicine. He then remarked, "Oh, are you a doctor?"

A. "Yes, Sir."

Man, "But I thought you said that you were a medical student!"

A. "I did, Sir, for I am, and I intend to remain one as long as I practice medicine."

At this point Dr. Stanton came in and the conversation ended.

Dr. Alfred Stengel has put this same idea into a forceful simile. He said that a man who gets a splendid undergraduate medical training and goes into practice and ceases to study is just like a man who deposits a large sum of money in the bank and keeps drawing it out without ever depositing any more. Some day he will find himself bankrupt. The physician's education is his capital, and he cannot afford to become intellectually bankrupt.

The routine of a busy practice makes any study difficult, and all of us unavoidably miss a lot of good things, but there is a special danger in failing to keep in touch with the fundamental advances in pharmacology and therapeutics, and that is, that we shall be swept away by the confusing mass of propaganda, good, bad and indifferent, and, as Osler says, become enslaved thereby.

How is this brought about? In a number of ways. In the first place, by the operation of the psychological principle of the summation of stimuli. Let me illustrate. We are walking in the business district of a great city. A newsboy cries his paper. We do not want a paper, as we are too busy to read it, and we are not feeling in a particularly philanthropic mood towards newsboys at that moment. We do not buy. We walk ten blocks and encounter ten newsboys. We buy from the tenth, simply because the summation of stimuli to buy has reached the point where it has broken down our resistance. So it is only too often with regard to the propaganda of the proprietary houses. Daily detail men plus a daily flood of literature in the mails, make the continual dropping of water that wears away stones. This insidious but powerful influence can be offset only by a sturdy intellectual independence based on the power of straight, hard thinking, which is in turn founded on a positive constructive study of the work of the masters of pharmacology and therapeutics. Such intellectual independence must be preserved at all cost, if we are to make real progress and live up to the best traditions of our profession.

A second factor that makes us the easy victims of the drug houses is their adoption of short catchy trade names for their products. It is so easy to remember and prescribe a single catchy word. The product may in some cases do the patient good, but will it not often do the doctor harm? We all, including myself, use some of these products, but is there not danger in a catchy name? How often have we heard physicians of standing and ability suggest certain proprietary drugs for patients, and we have asked, "What is in that preparation?" and the reply has been, "Oh, I don't know, it's a thing that I've found gives relief in these cases." Is not this empiricism run riot? Where has the doctor's intellectual independence gone? Where is the intelligent appreciation and understanding of the working of cause and effect? Empiricism is necessary and valuable where our knowledge is too incomplete to explain phenomena, but the true scientific practitioner is ever eager to know the hidden causes of things, and accepts nothing blindly when he can find adequate reasons for the faith that is in him.

Of course, I realize that any idea may be pushed to an extreme. There is some truth in defining an educated man as a man who has forgotten a great deal. The only thing is, he should not forget too much, especially in his own chosen field of endeavor. The doctor in question may have investigated the ingredients of the preparation, and satisfied himself that it is a rational mixture. He need not remember all the detailed amounts of flavoring material, vehicle, etc., in it, but he should know the amount and nature of the potent drugs in it, the compatibility or incompatibility of its different ingredients, its simplicity or complexity, etc.

Let us look at a few examples of some rather remarkable preparations. One widely prescribed mixture is said to contain the following drugs: alcohol, heroin hydrochlorid, tinc-

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ture of euphorbia pilulifera, syrup of wild lettuce, tincture of cocillana, fluid extract of squill, fluid extract of senega, antimony and potassium tartrate, cascarin, and menthol. I wonder if there is a physician here who would for a moment consider deliberately specifying in detail all these drugs in a single prescription, yet I dare not ask how many of us there are who have never ordered just these same drugs all in one prescription under the catchy and widely advertised name of syrup of cocillana compound! The *fact* that *it relieves cough in many patients* does not alter the *fact* that *this is a shotgun mixture of the first magitude.* We can get results with almost any potent drug in sufficient dosage by prescribing it mixed with all the ingredients of an eight course dinner every three hours, but because we *can* do so is no reason why we *should* do so!

I am not objecting to a real, ethical proprietary that is in itself a rational mixture. A mixture put up in palatable, permanent, inexpensive form such as we would order compounded by the pharmacist if we did not have the proprietary, is often a useful thing. I can see no objection to prescribing, for example, a ready prepared tablet containing a combination of acetylsalicylic acid, acetphenetidin, and citrated caffein to a patient whom I wish to have this combination of drugs, rather than to needlessly take the time of a busy pharmacist to put up these drugs in capsules or some extemporaneous mixture. I agree with Osler that we *do* owe a very real debt to the manufacturing pharmacist. Some of our most potent drugs, e. g. epinephrin, have been developed in the great research laboratories of our manufacturing drug houses. I am objecting to the proprietary *evil*, not the proprietary *good*.

I wonder who can tell the action of *all* the following drugs: thuja occidentalis, pichi, saw palmetto berries, triticum repens, and hyoscyamus? The last named drug is familiar enough, and known to be potent, saw palmetto may have a diuretic action, but what about the other three? Yet they are all said to be present in cysto-sedative, which our pharmacists tell me is widely prescribed by physicians. Again the magic of a catch name!

The Harrison Act has greatly lessened the sale of habit forming drugs, proprietary and otherwise, but there is still some room for improvement in this respect. Wampole's hypnobromic compound is, I am told, extensively prescribed by physicians, and is also dispensed without prescription. Each *ounce* is said to contain

Cannabis indica	1 grain
Potassium bromid	48 grains
Hyoscyamus	1 grain
Chloral hydrate	96 grains

A Vermont physician wrote that he had at one time three young women who were addicts to this preparation as a result of thoughtless prescriptions from physicians. (*Cf. Journ. A. M. A.* Feb. 7, 1920). I am informed that this preparation is often dispensed in eight ounce bottles containing 768 grains of hydrated chloral! What reputable physician would thoughtfully precribe, or druggist dispense, over seven hundred gains of hydrated chloral to one person at one time, except under very extraordinary circumstances?

So we could go on indefinitely. The shotgun hypophosphite mixtures, the many complex, so-called uterine sedative mixtures, the thousand and one tonics and sedatives for all human ills, all kinds of preparations, shotgun, popgun, blowgun, shrapnel, high explosive, and even gas, and, above all, in this day and time, the endocrinomania that seems to be running amuck, almost without let or hindrance, though occasionally the profession is saved from utter disgrace by the voice of a Harvey Cushing crying in the wilderness.

It is of little use to anathematize the proprietary drug houses for these evils. In the last analysis, whose fault is it that they get by with some of the stuff that they do? *Ours*, of course! Talk to any detail man about the complexity, the uselessness, the dangers, or the incompatible ingredients of his preparations, and he always has one painful comeback: "But, Doctor, ninety per cent of the doctors prescribe it!" I can only sorrowfully say that I know it, admit that it is our fault, and read him the passage from Osler quoted at the beginning of this paper.

What about that much abused organization, the Council on Pharmacy and Chemistry of the American Medical Association? I do not believe that it is infallible any more than any other human institution, but I do consider it invaluable. If we would only familiarize ourselves more thoroughly with its aims and achievements, we would appreciate it more. Like all reform organizations, whenever it makes a mistake, that mistake is heralded far and wide by a multitude, whereas its real

value is often totally unrecognized. No practitioner can investigate for himself, by pharmacologic research, all the new drugs that come to his notice. The Council is a competent board of experts that charts the unknown therapeutic seas for us, and we should appreciate and use it more. If we are touring the country and find a mistake in a road map, that does not cause us to throw it away and try to make our own map, yet that seems to be the position of some with regard to the Council's endorsement or disapproval of proprietary drugs. They feel that the Council has made a mistake somewhere, and therefore take the attitude that it cannot tell them anything. This attitude is encouraged by many detail men. Careful consideration, however, will not fail to make us realize the need of a strong central body that can help to overcome the universal *post hoc* error, and thereby correct the fallacies of individual experience; that will counteract undesirable proprietary propaganda; and that can authoritatively publish the glad tidings of new therapeutic discoveries of real value. Especially is such a strong central body valuable in controlling undesirable tendencies in advertising. The rules that the Council has drawn up regarding the advertising of proprietary drugs make up a very potent influence for good, and I hope the day may soon come when all the medical journals in this country will admit only Council passed drugs to their advertising columns. It is far better to be too strict than too lax on this point, for advertising is a mighty power, and should never be employed by a reputable journal to further any questionable enterprise.

This does not mean that I want to see any small group become so authoritative as to enslave us. Galen was so great an authority that his opinions impeded medical progress for centuries. Neither, however, do I want to see Bolshevism in medicine. We cannot afford to ignore the fundamental principles laid down by the great masters of pharmacology and therapeutics. The Council is doing good service in upholding these principles. In this connection, it is well for us to take to heart those ancient words of wisdom inscribed on the Collis P. Huntington Memorial Laboratory in the Harvard Medical School:

"Life is short and the art long, the occasion instant, experiment perilous, decision difficult."

To many the Council may seem too conservative. There may be some justice in this view, yet in this day and time, when the well-nigh universal motto seems to be "give her more gas," it is truly refreshing to find an *intelligently* conservative group, and such a group is so rare as to be priceless. This does not mean, however, that we must all fall absolutely in line with all its minor views and decisions. We must preserve our intellectual independence at any cost, as has been said. Scientific investigation can go on anywhere. No small group can rightfully take the attitude, "I am Sir Oracle, and when I ope my mouth let no dog bark!"

The only real basis, however, of capable independent thought, is a knowledge of fundamental principles derived from a proper correlation of study and observation. Only thus can we profit by our experience as we should, only thus can we fulfil our obligations to our patients, and only thus can we derive the fullness of joy from our work.

1081½ *North Main Street.*

THE USE OF LACTIC ACID MILK IN INFANT FEEDING.*

By THOMAS D. JONES, M. D., Richmond, Va.

The fact that infants cannot ordinarily digest as great a total amount of cow's milk, as of breast milk, has led to the practice of feeding lesser amounts of cow's milk, diluted with water, and with the addition of some form of carbohydrates to meet the caloric requirements. Such modifications apparently meet the nutritional and developmental demands of most normal infants. But in many abnormal cases, especially the premature or athreptic baby, the amount of milk required is more than can be efficiently cared for by the gastro-intestinal tract, when such dilutions are used. Therefore, the real problem in these cases is to supply a food in not too large volume with a sufficiently high caloric value to meet the nutritional requirements.

It has been shown that sweet cow's milk is capable of neutralizing to a great extent the acid of gastric juice, thereby seriously impairing the digestive function. It has been estimated that the normal range of gastric acidity at the height of digestion for the first year is ph5. The stomach cannot perform its task in the digestive process without producing enough hydrochloric acid to raise the level of acidity to a point where the various enzymes will be

*Read before Junior Medical Society of Richmond, April 25, 1924.

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activated. The threshold of ph5 has been assumed as necessary to meet this requirement. Cow's milk, by its high buffer content (chiefly phosphates and calcium caseinate) has a property of binding large amounts of acid and converting the hydrogen into a non-ionized form, thus to all intents and purposes neutralizing the acid. It has been shown that acid milk does not neutralize the gastric juice and in this respect behaves more like breast milk. It is furthermore usually free from pathogenic bacteria on account of the inhibitory effect of the acid on bacterial growth. It has been asserted that the live lactic acid organisms present in bacterially sour milk exert a favorable influence on gastro-intestinal processes, and that the somewhat lowered sugar content is a factor in rendering it more digestible. These considerations, however, cannot be applied to milk soured by the addition of U. S. P. Lactic Acid.

Heineman states that the most complete classification of lactic acid bacteria is that of Lohnis, who arranged them in four groups:

Group 1.—The bacillus coli group is always present in market milk and in the majority of certified milks. It attacks milk sugar with the formation of gases and acids, attacks proteins slightly in the presence of carbohydrates and more profusely in the absence of carbohydrates. The bacillus aerogenes is also a constant inhabitant of milk and belongs to the coli group. It vigorously attacks carbohydrates with acid and gas formation, but does not attack protein.

Group 2.—The streptococcus lactic acid group grows preferably under anaerobic conditions and is abundantly found in the deep layers of sour milk. No gas is formed from the activity of this organism. The spontaneous or normal souring of milk is brought about by the activities of these two groups. The bacillus coli group initiates the formation of acid. The curd formed when the coli group predominates has a great deal of gas in it, indicated by bubbles, and has an unpleasant odor; while the curd formed when streptococcus group predominates is smooth, free from gas bubbles, and has an agreeably sour taste. The temperature at which the coli bacilli group is most active is 30° centigrade or over, while at a more moderate temperature, that is from twenty to twenty-five degrees centigrade, the streptococci soon outstrip the coli group. Hence milk soured at a low temperature has a much more agreeable flavor than that soured at a higher temperature. It is therefore obvious that the best quality of buttermilk is obtained when the milk is sufficiently heated to destroy most of the bacteria and then inoculated with a pure culture of streptococcus lactic acid.

Group 3.—To this group belongs the bacillus bulgaricus, or lacto-bacilli. These bacilli are large organisms and produce more acid than either of the preceding groups. The acid consists chiefly of inactive lactic acid and the curds of milk formed from this group are smooth and semi-fluid. Carbohydrates are essential to their growth and milk is the most suitable culture media. They do not grow at the ordinary optimum temperature of other strains, but require a temperature of about 44° or 45° centigrade. They are almost universally present in milk and Heineman and Hefferman found them in many substances, such as bran, sour kraut, feces of man, horse and cow, and in both normal gastric juice and the gastric juice of patients suffering from carcinoma of the stomach; the Boas-Oppler bacillus was proved to be of this type. As far as present knowledge goes they are non-pathogenic and have been recommended by many authors for therapeutic purposes. The subject apparently needs closer investigation before reaching definite conclusions. Some benefits have undoubtedly been derived from their use, but whether from the prevention of putrefaction, or simply by the introduction of an easily digested food, is an open question. The bacillus acidophilus also belongs to this group, and, according to Rettgen and Cheplin, is indistinguishable from the bacillus bulgaricus. It differs from the bulgaricus, however, in that it produces relatively little acid in milk (less than 1 per cent), and attacks maltose with acid formation. The bacillus bulgaricus has no action on this sugar. It undergoes rapid development when administered by mouth, or as a result of milk, lactose or dextrin feeding. It grows rapidly at a temperature of from 35° to 37° centigrade.

Group 4.—Micrococci are closely related to the staphylococci. They produce acid, break down proteins and play a role in the ripening of cheese, but are otherwise unimportant.

Whole milk artificially soured by inoculation with lactic acid producing bacteria can be obtained from dairies in most large cities under various names, such as bulgarian milk, fermilac, lactase and richelack. Marriott states

that methods of preparing milk from lactic acid cultures are not free from difficulty, that uniform preparation is not readily obtainable, and that contamination of the cultures frequently occurs. While, on the other hand, the addition of lactic acid to sterilized milk can easily be carried out, even by unintelligent mothers, and it is nearer fool proof than other modications. The milk is boiled five minutes, then cooled and U. S. P. Lactic Acid added drop by drop, stirring constantly. One dram is added to each pint of milk. This preparation keeps well even if not kept in a refrigerator and its acidity almost completely inhibits bacterial growth. Marriott has inoculated such milk with pure cultures of bacillus coli and bacillus dysenteria and found no growth at the end of twenty-four hours. Ohtar has shown that when such milk is contaminated by the addition of mixed stool bacteria, no growth of the organisms occurs. The addition of carbohydrates in some form to lactic acid milk is recommended. Marriott prefers Karo Corn Syrup because of its high proportion of difficult fermentable dextrin. Two tablespoonfuls equals one ounce, and it has a caloric value of 120.

The value of the use of lactic acid milk in infant feeding seems to be a well established fact. While it has not been generally adopted as a routine procedure in artificial feeding, Marriott has used it in 90 per cent of his infants in the ward at St. Louis Childrens' Hospital during the last two years. He has also used it in more than one-half of the cases coming under observation in the Washington University Dispensary during the same period and states that the results are so satisfactory that a still wider use of the method is to be recommended.

Babbott, Johnston, and Haskins tested the gastric contents in cases of active tetany and found a definite and marked lowering of the acidity in every case. In these cases the acidity returned to normal value synchronously with the relief of symptoms of tetany, and there was likewise a coincident rise of calcium in the blood serum. It has been found that the disease can be cured by adding acid or acid-forming substances to the diet. Mariott states that he has never seen a case of tetany in a baby fed on lactic acid milk. Observation was made by Von Noorden in 1907 that calcium is known to remain in solution only in an acid medium. In some recent work of Courtney at the Medical College of Virginia in feeding bacillus acidophilus milk to parathyroidectomized dogs, he found that there was a prompt amelioration of symptoms of tetany when this milk was given, but there was no increase in the blood calcium content. He attributes the result to the prevention of putrefaction.

Assuming that rickets can result from too high a degree of alkalinity in the intestines of an individual on a well balanced diet, Dr. Martha Jones, of San Francisco, treated three cases of active rickets by adding acid to the milk formulae without making any other change in the diet. She obtained prompt and striking results in from ten to fourteen days with relief of clinical symptoms, the X-ray showing marked increase in the calcification of bone.

Marriott and Davidson tested the gastric acidity of sixteen abnormal infants suffering from acute and chronic infections, including otitis media, pyelitis, pneumonia, osteomyelitis, and found that the average hydrogen ion concentration was only 1/10th that of normal infants receiving the same food. The same test on the gastric contents of normal infants receiving cow's milk showed a hydrogen ion concentration of only 1/20th that of normal infants fed on breast milk. The gastric acidity of abnormal infants fed on cow's milk was less than in any other series studied, but when the abnormal group was given lactic acid milk they showed a somewhat higher hydrogen ion concentration than the same group fed on breast milk.

The limitations for the use of lactic acid milk in infant feeding seem to be very slight. Faber sets six weeks of age as the earliest time at which acidified milk should be used. He claims that it is not well borne at an earlier age, but the excellent results obtained by both Park and Marriott in feeding lactic acid milk to newborn premature infants would seem to disprove this claim.

Czerny and Kellar are strongly of the opinion that hyperacidity, in the sense of excessive percentage of acid in the gastric secretion of an infant, has never been proved. Carlson's work indicates that hyperchlorhydria in infants never means anything more than rapid secretion of gastric juice with a constant acidity. The following case was probably one of that type.

The case was first seen February 19th, 1924. R. W. S., white, male, age four and

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one-half months, father and mother both living and healthy, no brothers or sisters, mother had had no miscarriages, was a full term baby at birth, normal delivery and normal at birth. Birth weight was nine pounds. The chief complaint was regurgitation of food, constipation, restlessness at night, and failure to gain weight. Baby would regurgitate regularly after each feeding from a few minutes to two hours after food was taken. Was breast fed for six weeks but was taken off the breast because of regurgitation and various formalae had been tried, mostly whole milk dilutions, without any relief of symptoms. On physical examination the baby was poorly nourished (weight, eleven pounds, eight and one-half ounces), the extremities were somewhat spastic (hypertonic), there was considerable beading of ribs, with flaring of costal margins and cranio-tabes. The baby was given a bottle during examination, and about fifteen minutes after taking formula became restless and fretful. A distinct peristaltic wave was observed moving from left to right side of epigastrium. This was soon followed by regurgitation of about two-thirds of food taken. No tumor was palpable in region of pylorus. Diagnosis was made of rickets, with a possible pyloric obstruction. Baby was put on one one-thousandth of a grain of atropine twenty minutes before each feeding, and formula of three tablespoonfuls of dried milk to six ounces of water given every three hours. When seen two days later regurgitation was entirely relieved, was taking formula well and mother stated baby was more comfortable than he had been for many weeks. The strength of the formula was increased and Cod Liver Oil was given, the rachitic symptoms improved, and there was a steady and satisfactory gain in weight. On March 20th the weight was thirteen pounds, fourteen ounces, but in view of the fact that there were still evidences of active rickets present, I felt it desirable to make a change to acidified fresh cow's milk, if possible, so started him on a dilution of lactic acid milk and Karo. There was a prompt return of regurgitation with evidences of pylorospasm, but in spite of these symptoms we persisted with the formula for two days, after which the lactic acid was left off, and the same formula was retained without any difficulty. The child is now taking a satisfactory milk formula, is continuing to gain weight and is showing satisfactory improvement in rickets.

The behavior of this case would indicate that a hyperacidity was produced by feeding acidified milk, with resulting pylorospasm. In such case the use of lactic acid milk is probably contra-indicated. Otherwise its use seems definitely indicated in premature and athreptic infants, rickets, tetany and acute and chronic infections.

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Medical Arts Building.

ECTOPIC PREGNANCY.*

By H. W. PHILLIPS, M. D., Norfolk. Va.

Ectopic gestation presents such diversified pathology and its clinical manifestations are so varied as to make diagnoses difficult. No pelvic condition gives rise to more diagnostic errors and none can be of greater emergency. Its multi-colorings create a confusing panorama of this, now, not uncommon pelvic condition first mentioned by Abulcasis in the 10th century, and first operated by Lawson Tait in 1883. The incidence of eccyesis is quoted to be one in every hundred cases of pregnancy.

Many cases of rupture of the sac, or tubal abortion, undoubtedly occur and pass under the diagnosis of appendicitis, abdominal colic, and the like,—spontaneous recovery taking place.

Ectopic gestation is more frequent in cities; oftener after the age of thirty years,—after long periods of relative sterility; and in those with antecedent pelvic disease. Repetitions are not uncommon, occurring in the same, or other tube. Among the most plausible causes are salpingitis, pelvic adhesions, infantile tubes (convoluted and lack of celia), external wandering of the ovum, diverticular and accessory tubes,—decidual reaction of the tubes, —and diseases of the corpus luteum.

In cases of external wandering of the ovum, the ovum becoming fecundated, grows so large as to be unable to pass the lumen of the tube

*Read before the Norfolk County Medical Society.

and during its sojourn the trophoblast develops to such an extent as to attach itself wherever mullerian tissue is present. The presence of mullerian tissue in the ovary may be explained by the implantation theory of Sampson, or by the hypothesis that it is derived from a congenital "rest."

The most common form of ectopic gestation is tubal pregnancy, whether ampullar, medium, isthmic or interstitial, and the course in all is the same. The trophoblast produces cytolysis of the cells of the mucosa and the ovum burrows into the wall,—analogous to pregnancy in the normal uterus. The villi erode their way into the blood vessels. The wall of the tube being so different from the thick decidua of the uterus, and the ovum acting like a rapidly growing neoplasm, makes the dangers of tubal pregnancy easily grasped. The growing ovum distends the tube to the point of rupture. Some hypertrophy of the tube occurs in all cases, and in rare ones the tube grows to term without rupture.

At the placental site of its attachment, the rapidly growing egg separates the muscular fibers and destroys by erosive action the insufficiently accommodating tube, and weakness at this point results. Any traumatism, straining at stool, jar, coitus, douche or bimanual examination may cause hemorrhage at this point. The bleeding into the tube destroys the ovum and a mola carneosa is formed, or the sac ruptures within the tube producing *intra-capsular* rupture, or the tube bursts and the villi lie free outside the tube, this being *extra-capsular* rupture. When the tube bursts into the peritoneal cavity, the bleeding causes hematocele formation in the pelvis. When the tube bursts into the folds of the broad ligament a hematoma is developed there. Rupture of the tube is the most common termination of *isthmic* and *interstitial* pregnancy, while in *ampullar pregnancy* the gestation sac usually develops toward the fimbriated end of the tube and tubal abortion occurs. In the *interstitial* form, when abortion occurs the ovum escapes into the uterus. All forms of tubal pregnancy may pursue the same course and termination. The course of tubal abortion resembles that of uterine, in that the hemorrhage occurs in the decidua serotina, loosening the ovum from its bed. The blood and ovum now overdistend the tube and rupture of the bag of waters occurs. The foetus escapes in the lumen of the tube, or from either end. If in the tube, the ovum and clots are gradually extruded from the tube into the peritoneal cavity, the blood escaping from the fimbriated end of the tube forming an hematocele in the lower pelvis.

Ovarian pregnancy results when the ovum is fecundated before its extrusion from the graafian follicle, or in an old ruptured follicle into which an ovum is discharged. Ovarian pregnancy is rare, and to prove its existence it is necessary to eliminate the tube or fimbria having any part in the formation of the sac.

Primary abdominal pregnancy is extremely rare and its occurrence questioned. The mullerian implantation theory offers support to the possibility of its occurrence.

Secondary abdominal pregnancy results from tubal abortion or rupture, when the ovum continues to grow. The rupture having taken place at the periphery of the ovum, opposite the placental site, the embryo escapes into the peritoneal cavity or between the folds of the broad ligament inside an intact amniotic sac, or naked. Or the tube, becoming immensely thinned, forms one layer of the sac and distends into the peritoneal cavity, or between the folds of the broad ligament, and continues to develop.

Any secondary abdominal pregnancy may result in late rupture of the sac. In all forms of rupture or abortion with death of the foetus, the mass of clots and embryo, if not beyond the eighth week, are rapidly absorbed by leukocytic and ferment action, and subsequent permeability of the tube is established. Should the pregnancy go to term in any one of these fashions, spurious labor sets in, the child dies of hemorrhage into, or separation of the placenta,—or may not die until later when nature tries to get rid of it as a foreign body. With the uterine contraction the decidua is expelled with slight hemorrhage. After the death of the foetus the liquor amnii and soft parts are absorbed; i. e., the foetus is skeletonized. Infection *via* blood or contiguous structure, especially the bowels, may occur, and the mass with the ovum suppurate into the bladder or rectum,—less often the vagina or abdominal wall. Through the fistula are passed the broken down soft parts of placenta and foetus, and finally the separate bones, the process being one which lasts over a period of months or years and which the patient may not survive.

Another termination of the foetus, is mummi-

fication, and with deposits of lime salts, lithopedion (stone child) formation occurs. These formations have been carried over periods of 30 and 60 years.

Double tubal pregnancy, two gestation sacs in one tube, and twins, and even triplets, in one sac, has been observed.

Combined extra- and intra-uterine pregnancy is not rare, and offers a very serious prognosis. Abortion of the uterine ovum precedes or follows rupture of the ectopic sac. Rarely, the woman goes to term and then labor is usually spontaneous. Death from internal hemorrhage or sepsis of the abdominal mass usually occurs. The extra-uterine foetus rarely obstructs the passage of the intra-uterine. With the successful removal of the ectopic pregnancy, the patient may go to term normally. In the first few months of ectopic gestation there are symptoms referable to the pelvis. Only occasionally a woman perfectly well may suddenly have an internal hemorrhage and die before a diagnosis can be made. Medico-legally the question of foul play may arise. As a rule the patient misses a period and has the ordinary symptoms of early pregnancy, but soon complains of vague pains in the lower abdomen, especially of the side affected, cramp like, due to uterine contractions. After a few weeks disturbed menstruation appears, and suspicions of threatened abortion rise. These symptoms continue until suddenly upon a strain or jar or coitus, a severe pain is felt in one side, the patient feels faint or dizzy, and may vomit or feel nauseated. Symptoms of shock, due to sudden distention of the tube, to irritation of peritoneum, or to great loss of blood may appear. Pains continue and uterine decidua is discharged. These symptoms may indicate rupture or abortion. The acuteness subsides in a few days and the whole process terminates in 3 to 6 weeks, slow absorption taking place. A more stormy picture of rupture of the sac is when the patient is suddenly seized with excruciating pain in the affected side, spreading over lower abdomen. This is followed by nausea and vomiting, with profound shock and evidences of hemorrhage; marked pallor with cyanosis about the lips and pearly conjunctiva; yawning and sighing, or air hunger, with fast, small pulse and extreme weakness. Internal examination reveals enlarged uterus with soft bulging down of cul-de-sac, or a mass in cul-de-sac, if blood has clotted. When the rupture has occurred into the broad ligament, the pain is most intense, due to tearing asunder of the folds of the broad ligament, and shock is more pronounced, overbalancing anemia, and a firm mass (haematoma) may be felt on the side affected. Now should the *foetus continue to develop*, after escape by rupture, there occurs peritoneal irritation, pain, soreness, nausea, vomiting, diarrhea or constipation (sometimes hemorrhage from the bowel), bladder disturbance, loss of strength and invalidism. The signs of pregnancy continue, foetal movements are felt and cause painful distress to patient. The tumor grows with the weeks, and may be asymmetric or median. *Should the foetus die*, the symptoms of pregnancy disappear and there occurs sub-febrile temperature, rapid pulse, anorexia, coated tongue, fetid breath, loss of weight, and invalidism. Subicterus, or marked jaundice, if with fever, denotes beginning decomposition of sac and contents, with sepsis and peritonitis. Or with lithopedion formation, involution occurs, peritoneal irritation subsides and health is restored. Future deliveries may be interfered with by the calcified foetus.

Diagnosis.—Before rupture or hemorrhage into the tube, the tube is as soft as an intestinal loop, and diagnosis is seldom made: whereas after rupture or hemorrhage the tumor can be easily felt.

In an early pregnancy it is necessary to decide whether the tumor is an ovum or not. During the later half one must decide whether the ovum is intra- or extra-uterine. No pelvic condition gives rise to such a multiplicity of pathology and symptomatology, and offers such diversified obstacles to diagnosis. The history is most helpful. When a woman in the reproductive period has irregular menstruation, has gone over the proper time a few days, or sees only a small amount, or has more profuse flow, or has missed a menstrual period or two, complains of cramping pains in the lower abdomen, unilateral, with disturbed menstruation, the suspicion of ectopic pregnancy is aroused. If suddenly the picture of rupture occurs a diagnosis is almost certain. Haematocele is seldom palpable before the first 24 or 48 hours after rupture. It may be behind or in front of the uterus, or to either side, causing displacement of the uterus in opposite direction. In the broad ligament the haematoma can be made out early, is firm and tender and displaces the uterus to side and upward.

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Warning—with symptoms of a possible ectopic pregnancy, the examination must be conducted with the utmost gentleness, and with preparations for any emergency.

The diagnosis from uterine abortion is most important and a careful bimanual examination should be made to rule out extra-uterine pregnancy before a curettage is done. Should collapse follow curettement, suspicion of ectopic rupture should be seriously considered.

Acute appendicitis has often been mistaken for ectopic gestation, especially when real pregnancy co-exists. Rupture of a pus tube or any hollow abdominal viscera, perforation of stomach or duodenum or gall-bladder, bursting of an appendiceal abscess, or rupture of a graafian follicle, twisting of an ovarian tumor and a stone in the kidney or ureter give rise to symptoms of ruptured tube,—especially when normal pregnancy is present.

Infected haematoma or haematocele give symptoms of pyosalpinx, pelvic cellulitis or perimetritis. A long cervix, softened at its upper part, allows the fundus to fall backward or to either side. The cervix is mistaken for the uterus and the fundus for the ectopic sac. Angular pregnancy in the early months cannot be differentiated from interstitial pregnancy. The hospital, for observation of clinical course, should be advised.

Pregnancy in a retroverted uterus has been thought to exist, and attempts at replacement have resulted disastrously by causing rupture of an ectopic ovisac. Among the signs that should aid us most materially in the diagnosis of ectopic pregnancy are a careful history, irregular colicky pains, external hemorrhage, scant and fluid, (hemorrhage free from clots, villi and products of conception); profound shock, a mass alongside uterus and more or less anemia and jaundice.

Cullen's sign consists of a dark, bluish discoloration about the navel and can best be observed by darkening the room and using a flashlight upon the navel.

The Abderhalden serological test for pregnancy can be helpful only when negative results are obtained. The Kamnitzer-Joseph glycosuria test is easily done. Claims are advanced that in the presence of symptoms of pregnancy, a negative test will indicate an ectopic pregnancy, in the absence of any undisturbed uterine pregnancy. A large, thick, rough decidual membrane expelled from the uterus, giving a more or less complete cast of the cavity, without chorionic villi, is almost pathognomonic of ectopic gestation.

X-ray is only helpful in late months and where lithopedion formations occur. In the latter months of ectopic gestation the diagnosis is mainly concerned with whether the foetus is extra- or intra-uterine. The prognosis is impossible, due to the multicolored nature of this disease. Many mothers recover spontaneously, or under expectant treatment. The ectopic ova die, or in cases that go to term the foetus is usually deformed or not viable. Morbidity is high due to peritonitic adhesions, decomposition, abscess and the like.

The treatment in the first trimester, whether before or after the explosion, is pre-eminently surgical and the operation is easy; but, when advanced beyond the fourth month, the operation is more formidable, due to extensive adhesions to neighboring organs and large vascular connections, the vessel's wall being very thin.

It may be necessary to leave the placenta *in situ*, removing the foetus and stitching the edge of the sac to the abdominal wall packing firmly and leaving to nature to slough or absorb the mass.

After rupture, when shock and hemorrhage are profound, it is often necessary to combat these symptoms before surgical intervention. This can best be done by the use of morphia hypodermically, hot packs, lowering of head, the intravenous injection of thromboplastin, coagulen or horse serum, tight bandaging of legs and compression of abdominal aorta above its bifurcation.

Infusions, transfusions and stimulants only serve to wash out the patient more thoroughly and should not be employed until after the application of clamps to the bleeding vessels—when their use should be promptly begun.

Remember that in one exsanguinated, the veins are collapsed and inaccessible to puncture by needle. It is time-saving to cut the vein and introduce a cannula. Saline by hypodermoclysis, during operation, is advisable. The operation should be performed at the hospital if possible, but at the home if necessary.

Taylor Building.

XUM

AN EPIDEMIC OF PNEUMOCOCCIC INFECTION AT THE EASTERN STATE HOSPITAL.*

By ERNEST H. ALDERMAN, M. D., Williamsburg, Va.

During the past three months we have had at the Eastern State Hospital an epidemic of quite serious proportion. As will be noted from the title of my paper we have held the pneumococcus accountable for this. It is a question whether the title is well chosen. I wish therefore to modify it by stating that while we are uncertain as to the primary cause we know that some form of the pneumococcus was prominent in a large percentage of cases. Unfortunately we were unable to determine the type of pneumococcus because of the lack of proper facilities.

We cannot state definitely when the epidemic started. During last autumn we had a number of cases of colds, coryza, and bronchial disorders. These, however, were mild in effect. During January more of these cases occurred and steadily increased in number and in effect. Several cases were reported daily. We soon realized that we were entering into a condition quite comparable to that of 1918-19. In the latter part of February and throughout March conditions became worse. More of the cases developed pneumonia, and various complications occurred; e. g., tonsillitis, otitis media, peritonitis, cervical adenitis, cellulitis, and erysipelas. With these complications April furnished us with work which almost overwhelmed our small staff. During the three months in which this epidemic raged we recorded a total of 167 cases, 138 of these being on the patients' roll, twenty-nine among attendants and employees. I have classified these with respect to the predominating features in each case, and, with your permission, will discuss them briefly.

1. Uncomplicated Influenza

This is, I realize, a term of doubtful meaning because no one knows exactly what influenza is, or exactly where it stops and its complications begin. For example, bronchopneumonia is by some regarded as a complication, by others as a part of the disease. One is almost tempted to believe that by uncomplicated influenza is meant those cases which do not end fatally. Here, however, I mean those cases which had the well known features of the 1918 epidemic, and did not develop pneumonia, or any apparent complication. Of these we had sixty-three cases, forty-five female, and eighteen male; ages in these cases ranged from twenty-nine to seventy-four years with an average of 49.5 years. The onset as far as we could tell was sudden. Those of you experienced with the type of patients such as we have in our hospital will understand how difficult it is in many cases to tell when there is actual physical infirmity, and how difficult it is to make a proper examination. Subjective aids or symtpoms are of little value. Some of those afflicted with mental disorder complain incessantly of varied aches and pains, others are absolutely indifferent to illness and pain. Objective examination is made uncertain by lack of co-operation, and indifference, or worse still, by resistance sometimes of a violent nature. In most of these cases the patient who the day before had been apparently in good physical condition would stay in bed and refuse nourishment. Often the onset was with nausea and vomiting. There was usually erythema of the face and neck. Nearly all would complain of headache and aching in the joints and back, and of a chilly sensation. Anorexia, nausea, and vomiting, as said, were common. Temperature in these cases was high at the outset, ranging from 100° to 103°. There was coryza, with congestion of the visible mucous membranes; nearly all had a dry, hacking cough. Epistaxis, so common in 1918, was not seen in a single case. Examination of the lungs invariably showed areas of diminished breath sounds with fine crepitant rales in the base of the lungs, more especially at the inferior angle of the scapula on the right. Leucoyte counts were usually normal or slightly subnormal. Four cases, however, showed counts from thirteen thousand to eighteen thousand over a period of two days, then dropping to normal. The differential count showed an increase in neutrophilic polymorphonuclears up to 90%. Urinalyses were most often negative: a few showed a trace of albumin with an occasional finely granular cast.

All of these cases cleared up after two to four days of acute illness and prostration. There was weakness and anorexia lasting for a week or longer. In these cases we were unfortunately able to do no thorough bacteriological examination. A few sputums were examined and cultures made, these showing mixed infections—bacilli, streptococci, staphylo-

*Read before the Walter Reed Medical Society, in Newport News, Va., May 14-15, 1924.

cocci, diplococci, etc. In the maze of literature brought out in the past five or six years the most commonly accepted theory is, I believe, that while the bacillus of influenza (Pfeiffer) is not the cause of influenza it is usually present and that no one known organism is the specific agent.

2. Influenza With Erysipelas

Erysipelas is a dread term in any hospital, but particularly so in large hospitals for mental and nervous cases. The Eastern State Hospital had an epidemic of this disease eighteen years ago, at which time nearly one hundred cases occurred, fifty or sixty of which ended fatally. Since then only sporadic cases have occurred. On February the 29th past, we discovered a case of erysipelas in a patient seventy-eight years of age, who had been ill for several days with what we regarded as influenza. This patient has a basal cell carcinoma involving the tissues about the nose and left orbit for which he has received X-ray treatment. The erysipelas started at the periphery of this growth and rapidly spread over the face to the ears, involving one ear to a slight degree. This case was easily controlled in four or five days. On the 9th of March the second case occurred and then followed one or two per day for a week or more. Cases continued at intervals until late in April. No new case has occurred in the past three weeks. In all we have had twenty-four cases, seventeen of which recovered while seven died. We were soon struck by the fact that each case occurred in a person who was at the time suffering with the same symptoms as those with influenza or had only recently recovered from such. We at first ascribed this to the debilitating effect of the influenza on the resistance of the patient. Strenuous but unsuccessful efforts were made to locate the source of the infection. The first ten cases occurred on ten separate wards, so the probability of a single ward infection was dispensed with; the cases occurred simultaneously in the male and female departments so it was hardly likely that the physicians or attendants carried the disease from ward to ward. Bacteriological tests made at the laundry determined that proper sterilization was carried out with clothing and bedding. The milk, water and food supplies were tested without results.

We supposed that the disease was caused by the streptococcus erysipelatis but, on examining smears and cultures, found to our surprise that the predominating organism was an encapsulated diplococcus, Gram-positive, many of them intracellular. The material was obtained from blebs and from pus sacs forming in the skin usually about the infra-orbital spaces and the ear lobules. Eight cases showed the diplococcus; four gave negative results; the others were not tested. The only case where streptococci were found was one in which large abscesses formed and here the streptococci, staphylococci, and diplococci were found in about equal proportion. No bacilli were found. That diplococcus may at times be the causative agent in erysipelas is of course well known.

The clinical course was that of the usual type of erysipelas. Nineteen cases started about the nasal orifice as a small reddened area which rapidly spread. The periphery was elevated and fiery red, with occasional radiating red, thread-like lines. The patients became greatly prostrated, had high fever and complained of pain and burning about the face. Temperature at the outset was 101° to 102°, but rapidly mounted, becoming in some cases as high as 105°. It was of the remittent type with an evening temperature one to two degrees higher than that of the morning. The high temperature continued five to ten days, then subsided by lysis. Healing began as usual at the older areas. The general reaction was as usual. While most of the cases started at the nasal orifice, the first lesion in two cases was at the ears; in two cases it was on the legs and in one on the hand; one case involved both hands and arms, and face. The leucocyte count was very high, the lowest being fifteen thousand while many were from twenty-five to thirty with a few going above forty thousand. The percentage of polymorphonuclears was correspondingly increased. Blood cultures were made on four cases (repeated tests in one case) with negative results. Urinalyses showed albumin and casts. Sixteen cases made an uneventful recovery: one case developed signs of an abdominal infection, followed by cystitis, but recovered. One case developed gangrenous erysipelas of the left leg and died; five cases developed pneumonia and died, one of these meantime suffering a cerebral hemorrhage; one case died from acute dilatation of the stomach as ascertained at autopsy.

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3. Influenza With Infection About the Throat and Neck

Nearly all of our cases presented an early sore throat. In twenty cases this developed into a follicular tonsillitis. There was the usual general reaction. Locally the tonsils were greatly swollen with the crypts filled with pus. Cultures from this gave the pneumococcus in almost pure form. A few cases showed staphylococci and streptococci mixed with the diplococci. No case showed the diphtheria bacillus.

Four cases developed what we thought was peritonsillar abscess. There was tremendous swelling of the tonsils and of the soft tissues about them, and particularly of the uvula. Incisions were made but no pus was found, only a thin watery serum being present. In two of the four the serum showed encapsulated diplococci; the other two were negative bacteriologically.

In six cases the predominating feature was an infection of the tissues of the neck following an infection of the throat. There was great swelling of the cervical glands. Soon the whole side of the neck was a swollen mass. In three of these suppuration did not occur though one was incised in an attempt to find pus. Three cases did suppurate and when an incision was made eight or ten ounces of a thick sero-purulent fluid was obtained, in all of which we found the encapsulated diplococci. Only one showed, in addition, streptococci and staphylococci.

All of these thirty cases had a temperature ranging from 100° to 104° which after four or five days of remittency subsided by lysis. The leucocyte count was from fifteen thousand to twenty-eight thousand with a polymorphonuclear percentage of ninety to ninety-five. Twenty-nine of the cases in this group recovered; one developed pneumonia and died.

4. Influenza With Bronchopneumonia

Of the one hundred and sixty-seven cases, twenty-seven developed bronchopneumonia; eight of these recovered without further complication. Eight died of the influenza pneumonia; four died of erysipelas with pneumonia; one with cholecystitis and pneumonia; four with peritonitis and pneumonia; one with cervical cellulitis and pneumonia; one with pneumonia and pulmonary infarct, as found at autopsy.

In all of these cases the general reaction was very severe. Temperature ranged from 102° to 105°. In the fatal cases the pneumonia became apparent only twelve to eighteen hours before death. The physical signs were those of bronchopneumonia. Leucocyte counts were well above twenty thousand, some going as high as forty-five thousand, and in one case complicated by peritonitis going to sixty-seven thousand five hundred. We were permitted to do autopsies on five. All of these showed the bloody frothy lungs found so often in the 1918 epidemic with pneumonic patches scattered throughout. Smears and cultures showed the pneumococcus in abundance; one case showed a mixed infection.

5. Influenza With Peritonitis

All of the ordinary cases had abdominal symptoms, chief of these being nausea and vomiting. In twenty-four cases the abdominal symptoms predominated. There was the usual three or four days of the general type of influenza. Then the temperature suddenly rose to 104° or 105°. The nausea and vomiting became more pronounced; there was abdominal distention and marked tenderness; there was persistent diarrhea. Sixteen of these cases made a recovery after two or three days of intense illness. One case (an attendant) was sent to a general hospital where operation revealed acute and chronic cholecystitis. One case was operated upon in our hospital. This patient after three days of influenza developed double salpingitis. We treated the case expectantly, and peritonitis developed. At operation we found a thick purulent peritoneal fluid. We expected to find the gonococcus in this case, but culture revealed a Gram positive, intracellular diplococcus.

One case died of cholecystitis complicated by bronchopneumonia. Four other cases died within twelve hours after the onset of acute illness, and in all of these we found at autopsy bronchopneumonia of both lungs with peritonitis. The exudate in these cases was of a heavy sero-fibrinopurulent type. In every case the pneumococcus was found in abundance in the lung exudate and in the peritoneal fluid. In one of these cases, an old manic depressive seventy-nine years of age, we had not suspected a peritonitis. One other case developed signs of peritonitis, and, although operation was immediately performed and a quantity of sero-purulent fluid removed, the patient died within twelve hours, making the sixth death from peritonitis. The fluid in this case showed the diplococcus alone.

6. Influenza With Other Complications

Arthritis was a complication in three cases. This resembled acute rheumatic fever except for short duration. Also there was not such marked swelling. No fluid could be made out, hence bacteriological examination was not done. These cases ran a temperature of 101° to 103° over a period of three days; leucocyte counts were from fifteen thousand to eighteen thousand.

Otitis media occurred in four cases, one of these, in addition, having the cervical cellulitis previously described. Three of these four cases recovered. The other case afforded us an interesting autopsy. The patient, a man forty-eight years old, had been suffering for two days with the ordinary type of influenza. Suddenly his temperature rose, and there was evidence of otitis media and meningitis. Spinal puncture was done; the fluid was under great pressure, and contained an abundance of pus cells with a few streptococci and many encapsulated diplococci, frequently intracellular. Within twenty-four hours the patient died. At autopsy we found cerebral and spinal meningitis, otitis media, peritonitis (which had not been clinically diagnosed) and bronchopneumonia.

Summary and Conclusion

Report is made of 167 cases of influenza. Sixty-three of these were uncomplicated. Twenty-four developed erysipelas: twenty had follicular tonsillitis as a complication; four presented peritonsillar oedema as a predominating feature: six developed cervical adenitis and cellulitis; twenty-seven had bronchopneumonia; twenty-four cases presented abdominal symptoms as the most marked characteristic, in eight of which peritonitis was known to be present; three cases were followed by arthritis, four by otitis media, one by otitis media with meningitis. As may be noted, in several cases, two or more of these complications occurred in the same patient. There were twenty-four deaths distributed as follows:

Influenza pneumonia	8
Influenza pneumonia with cellulitis	1
Influenza pneumonia and pulmonary infarct	1
Influenza and erysipelas	1
Influenza pneumonia and erysipelas	5
Influenza and peritonitis	1
Influenza pneumonia and peritonitis	4
Influenza pneumonia and cholecystitis	1
Influenza with erysipelas and acute dilatation of the stomach	1
Influenza with otitis media, meningitis, peritonitis, and pneumonia	1
Total	24

It is of interest to compare briefly this epidemic with that of 1918. No accurate records were kept of the latter, but we know that out of a population of 775 patients, 162 cases of influenza occurred. Of these twenty-nine were fatal; the cause of death in each case being given as bronchopneumonia. Twenty-five of the fatal cases were male of an average age of thirty-eight; four cases were female of an average age of thirty-six. There were no cases of erysipelas, peritonitis or other complications. In this year's epidemic there were 138 cases among the patient body, out of a total enrollment of 1,015 during the three months. Twenty-four cases were fatal. Of these twelve were male of an average age of sixty-five years: twelve were female of an average age of sixty-nine. The great majority of all the cases, fatal and recovered, were well above fifty years of age.

We were interested in observing the effect of these infections upon the mental condition of the patients. So far as we could tell there was no marked change of even temporary effect except that the prostration temporarily brought about a suppression of manic manifestations. The cases were about equally divided among the different types of psychosis except that most of the fatalities were in the senile dementia group.

In conclusion, I wish to repeat that we do not claim that the pneumococcus was entirely responsible for this epidemic of influenza, but we do think, especially from our laboratory findings, that it was the predominating organism in the more severe complications, and it is especially notable that it was the apparent cause of erysipelas and peritonitis which are unusual complications of influenza, and are rarely due to the pneumococcus.

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PERFORATING GASTRIC ULCER WITH REPORT OF CASES.*

By S. B. MOORE, M. D., F. A. C. S., Alexandria, Va.

Etiology is really a mooted question, therefore I will touch on some of the more probable causes. The infection theory holds a prominent place. The Mayos and others have, by experimental work on dogs, caused gastric ulcer by obtaining a culture from the ulcer bed and transplanting it in the stomach wall of a dog, or by drilling out several teeth and filling in with a culture of this ulcer and plugging the teeth, the ulcer remaining in the stomach wall until the teeth are extracted. Another factor that takes a minor part in the consideration is lowered vitality, since this lessens tissue resistance and interferes with the blood supply of the parts, and excessive acid content of the stomach is by some considered a factor.

Hischowitz found gastric ulcer in 4.9 per cent of the tubercular cases at post-mortem. Bristto produced gastric ulcer in dogs by cutting the vagus and administering hydrochloric acid by mouth. Adrenalectomy will cause gastric ulcer. Experimental work has shown that thyroid deficiency will cause hyperacidity. I do not depend upon high acidity as pathognomonic in diagnosis of ulcer of the stomach. We find a certain number having a low acidity with ulcer. Hyperacidity is found in pyloric, or near pyloric cases. Occasionally you will find exceptions to this. Patterson found there was sometimes normally hypoacidity in ulcer of body of the stomach, and frequently hyperacidity in cases of pyloric ulcer. Koennecke claims that the pyloric end of the stomach secretes a hormone, which regulates the secretion of gastric juice, acting either through the blood or in a nervous reflex manner. When this hormone is deficient, excessive gastric secretion occurs.

Symptoms of perforated ulcer are very acute and intense, and cannot well be mistaken if you take in consideration the case history. Gastric ulcer occurs three times as often in men as in women. Frequently before perforation symptoms are slight; the patient may claim that he has had indigestion or hunger pains, which are nearly always relieved by food, alkalies, or vomiting. Diagnosis of acute perforation of the stomach is sometimes rendered difficult by absence of history of gastric disturbance and absence of vomiting. Pain in the lower abdomen, more over the right iliac focca, is due to an accumulation of gastric contents in this part. As a rule the diagnosis is easy if the possibility of the condition is borne in mind. The clinical picture is that of an acute onset with collapse; secondary or referred pain in left supraclavicular fossa; it comes on slightly after the original pain and does not last long. The history of this symptom can always be gotten by questioning the patient. Air is present in the abdominal cavity. Methylene blue may be given by mouth and, if found in the abdominal cavity, is proof of perforation. In one of my recent cases diagnosis was made by the odor of corn whiskey free in the abdominal cavity. This man was referred by a doctor from Nokesville, Virginia. The patient had been in good health with the exception of attacks of indigestion at long intervals. He had been treated for high blood pressure; had an acute perforation with severe pain and muscular rigidity; his friends thought it a case of intestinal cramps and gave the usual remedy, which increased the pain. I would not, therefore, advise this as a routine treatment for gastric perforation.

W. J. Mayo, from 1,200 cases of gastric ulcer studied, states that chemical and microscropical examinations of gastric contents are of little value.

Carman is quoted as making an accurate positive and negative diagnosis by means of X-ray in 95 per cent of 7,000 cases in a period of six months. This proves that X-ray is a most valuable method of diagnosis for the non-perforating type of ulcer.

M. J. Stewart, in a study of complications in an analysis of 350 fatal cases, found the most common one to be perforation. This rapidly follows a sloughing of a part or all of the peritoneal floor due to a slow progressive devascularization.

As to differential diagnosis from appendicitis, cholecystis, stone in the common duct, nephritic colic, and acute pancreatitis, and many other conditions, a complete history will usually clear up doubt in many of these. I find that acute appendicitis and perforated ulcer have many similar symptoms, especially when the gastric juices have flowed down over the viscera and peritoneum of the lower abdomen. Acute pancreatitis is another disease having many symptoms in common with perforated ulcer, and especially when the perforation ex-

*Read at the meeting of the Medical Society of Virginia, Maryland and District of Columbia, in Alexandria, May 21, 1924.

tends down into the pancreatic tissues. Perforation of the gall-bladder is rather hard to differentiate from gastric perforation

Stomach perforation usually occurs on the anterior wall near the lesser curvature,—and fatal hemorrhage is usually caused by a chronic ulcer. As to malignancy in chronic ulcer, ten per cent of all cases of simple chronic ulcer coming to operation have developed cancer from the ulcer, and one-half of these malignancies are unsuspected at the time of operation.

Ulcers are divided into acute, sub-acute and chronic varieties. The chief differentiation lies in the presence or absence of fibrosis. Acute ulcers are multiple and widely and irregularly distributed; they vary in size but the majority are less than one-fourth of an inch in diameter. They have a punched out appearance and are shallow, involving at the most the mucosa and sub-mucosa. Acute penetrating ulcers are terraced because of penetration over a lesser area of the muscular coat. Acute perforating ulcers are very rare and tend to heal readily. The amount of fibrosis and scarring is dependent upon the involvement of the muscular coat. Chronic gastric ulcers are single, but may be accompanied by acute ulcers. Most of the chronic ulcers occur along the lesser curvature.

Treatment of perforating ulcer is purely surgical: fifty per cent of the non-perforating ulcers can be cured more or less permanently by medical treatment. I recommend medical treatment at first for nearly all simple ulcers. In case of hemorrhage, medical treatment is important. When the hemoglobin is down and the patient very much reduced from the loss of blood, this is preliminary to surgical intervention. As to the method of procedure in surgery, some claim they get good results by simple closure of the perforation; others claim closure with gastro-enterostomy is necessary. Surgeons in favor of more radical treatment than the simple closure alone claim that ulcer is not cured by perforation and simple closure. Others do a partial gastrectomy. This is an excellent method for the non-perforating type but, in my opinion, it is too radical for the patient who has had a certain amount of shock, and whose peritoneum is soiled from the contents of the stomach.

Gibson reported twenty-eight cases of perforating gastric ulcer with simple closure, having a mortality rate of twenty-one per cent; eight had recurrences three months after operation.

T. Beer reported nineteen perforations with an operative mortality of sixty-three per cent.

McCreery reported twenty-five cases of acute perforation at Bellevue Hospital between October 1, 1919, and August 1, 1923, with a mortality rate of twenty-eight per cent. Some were treated by simple closure; others by closure and gastro-enterostomy. Drainage was done in early cases and was later discarded.

Roepeke reported nineteen cases. Thirteen of these, done in the first twenty-four hours, had no deaths; six operated on after forty-eight hours had a mortality of fifty per cent. Posterior gastro-enterostomy was done in thirteen cases with one death, and the simple closure method was used in six cases with two deaths. Eleven of the cases treated by gastro-enterostomy were entirely free from symptoms, while of the six not so treated one required second operation for ulcer.

Manuiloff, in a detailed study of forty-nine cases, stated that the number of hours that intervened between perforation and time of operation is of utmost importance. The prognosis on these cases was divided into three groups:

(1) Less than 6 hours, 13 cases with one death, or 7.6 per cent.

(2) Less than 12 hours, 15 cases with 8 deaths, or 53.3 per cent.

(3) Less than 24 hours, 21 cases with 21 deaths or 100 per cent.

From a study of the literature of perforating ulcer of the stomach, the following factors are of importance in making a prognosis:

(1) Length of time elapsing between the time of perforation and operation.

(2) Presence of troublesome adhesions.

(3) Character and quantity of gastric secretion, whether septic or aseptic.

(4) Experience, ability and judgment of the surgeon to do the operation rapidly, thoroughly and with the least trauma and exposure of the viscera.

(5) Proper nursing and after treatment.

I wish to report eight cases of perforation, all operated on within twelve hours, with no deaths. Four cases operated on since 1911 up to 1923 are all in apparently good health. Four cases operated on within the past year, from last reports, are doing well and are free from all digestive disturbances. One case had

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high blood pressure, which has returned to normal since operation.

Summary of Treatment

(1) Perforating ulcer should be operated on within twenty-four hours.

(2) Cauterize edges of the perforation.

(3) Close all perforations with two or three layers of sutures and cover with an omental graft.

(4) Do a posterior gastro-enterostomy.

(5) Clean out stomach contents from the abdomen by suction and mopping.

(6) Place in a Fowler position as soon as the patient reacts from the anesthetic.

(7) Use Murphy drip.

(8) Give water in small amounts after forty-eight hours.

(9) Liquid predigested food may be given after third or fourth day.

I find that a modified Sippy diet is excellent for this class of cases.

I have used drainage in all my cases and removed the tube after the third day. Many surgeons are doing partial gastrectomies for this condition. The methods which have given the best results are Polya, Balfour or Billroth 1, or the Finney operation. Another method reported by H. Fischer is to do first a Billroth operation. After the posterior walls have been sutured and before the anterior sutures are introduced, an Einhorn duodenal tube is introduced in the jejunum through the anastomosis. Immediately, upon completion of the operation, one ounce of whiskey and three ounces of water are introduced through the tube. Four hours later the administration of Einhorn's feeding every two hours is begun. Water is given between feedings to allay thirst. On the eighth day the tube is removed, and the patient placed on a soft diet by mouth. There is no pain or nausea or any inconvenience following this procedure.

Finsterer favors resection for all gastric ulcers which are to be operated upon. All his cases are done under splanchnic anesthesia.

In conclusion, I wish to state that all of my cases were free from post-operative pain and it was, therefore, unnecessary to administer opiates.

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SOME PRACTICAL POINTS IN MALARIA CONTROL.*

By J. H. CROUCH, M. D., Williamsburg, Va.

As an introduction to the subject of malaria control it seems desirable that I give you some idea of the prevalence of the disease in Virginia. Most of the cases are of course found in the tidewater section, and I have taken three counties, namely, James City, as representative of the Peninsula, Isle of Wight of the South Side, and Northampton of the Eastern Shore. The average for these three counties will be very nearly the average for all the counties represented in the Walter Reed Medical Society. During the past five years there have been reported from these three counties 3,052 cases of malaria, and 3,834 of *all other* diseases, not including influenza. Or in other words, if we exclude influenza, we find that there were nearly as many cases of malaria as of all other communicable diseases combined. Since not more than one-third of the cases ever consult a physician, and supposing that but seventy-five per cent of these are reported, we figure that about eight per cent of the people have an attack of malaria each year. How many of these cases are relapses from previous attacks we cannot tell, except that we do know that all cases occurring between November 1st and June 20th must be

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relapses, since the anopheles is not active after frost, and the few adults which survive the winter do not carry the infection with them. Breeding starts again in Virginia about June 1st, and it takes about fourteen days for the mosquito to hatch, and twelve days for the plasmodium of malaria to go through its sexual cycle in the mosquito.

A comparison of Virginia with other Southern States might be of interest to you. In James City County last year we took smears from 178 people, none of whom had active symptoms, and eight of them, or about five per cent, were positive. Beaufort County, N. C. reported sixty per cent positives in 3,000 smears, and a small section below Newbern had ninety per cent positives. Sections of Alabama and Arkansas report twenty-five per cent positives. So we may console ourselves with the thought that other sections are lots worse than ours.

Malaria, as you know, is contracted only through the bite of an infected anopheles mosquito. The first and most logical thing in malaria control work is to destroy the anopheles, the second, to try to keep her from becoming infected, and the third, to keep her from biting a well person after she becomes infected. The reason for saying "her" instead of "him" is that only the female has a taste for blood, and she only on certain occasions. All mosquitoes, contrary to the usual belief, are vegetarian, living on plant juices. It is only when the female becomes pregnant that she needs a meal of blood to furnish the protein for the development of her eggs.

Of the numerous strains of anopheles, all of which carry malaria, we have only two in Virginia, the anopheles quadrimaculatus and the anopheles punctipennis.* These two differ in appearance, habits, breeding places, etc., and will be considered separately. The quads are found in every malarial section of America and are *always the chief offenders* in spreading malaria. Findings of various investigators show that they are responsibile for more than ninety per cent of infections in Virginia, leaving only ten per cent for the puncts.

All anopheles have certain points in common; they fly and bite only at night; they travel from their breeding place never more than one mile and usually not more than one-half mile; they are rather timid and will not light on a person while he is moving; they breed only in fairly clean water, the larvae lying flat on the surface of the water; the adults have spots on their wings; when resting, the proboscis, thorax and abdomen are in a straight line and pointing towards the surface upon which they rest. The differences between quads and puncts have a very important bearing on the methods of control. While both fly and bite at night, the puncts will not enter a door or window. They are known as porch biters because they usually attack persons sitting on the porch or in the yard. They are rarely found in the house even when no screens are used. The quads are known as room biters because they come into the house. At least ninety-nine out of every 100 anopheles found in bedrooms prove to be quads.

Quads will of course bite out of doors also if the victim sits quietly for a little while.

Another important difference between the two strains is the type of water which they select for a breeding place. In James City County the puncts seemed to prefer ravines, ditches, marshy places, small water holes, and slowly moving water. Sometimes they were found in artificial collections of water such as cisterns and horse troughs that were not in use. Quads were found breeding heavily in larger ponds, especially at the sides and around the dams; they bred in moderate numbers in quiet lagoons in the swamps, and in what are known as frog ponds. No quads were found in ravines, ditches, small water holes or artificial containers. The only exception to this was an old bath tub in a farmer's yard. This had become filled with rain water, was covered with dead leaves and had a large number of larvae, which, on hatching, proved to be quads. It would be well to state here that the larvae of the two strains cannot be differentiated. With the adult mosquito, however, it is very easy. The puncts rest with the body perpendicular to the wall and they have a bright, silvery spot near the tip of the wing, as well as the brown spots. The quads usually rest at an angle of about forty-five degrees and have four brown spots on each wing.

The problem in James City County may be summarized as follows:

More than ninety per cent of the cases are caused by quads. The heaviest breeding of quads was found in the ten or more large ponds in the county. We believe that the control of mosquito breeding in these ponds would

*Since this article was written crucians have been found in several sections.

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wipe out at least seventy-five per cent of the malaria in the county. Mosquito breeding may be checked in several different ways: first, by draining the water off, this, of course, being permanent; second, by the use of oil or poison, a remedy which is only temporary and must be repeated often; third, by stocking the ponds with small fish such as minnows, gambusia and small perch. The ponds referred to are used either to operate grist mills or as fish ponds, and the first two methods could not be considered. They are already stocked with small fish, but the larvae hide in the vegetation and floatage around the edges where the fish cannot get to them. Thus the problem is to get rid of the vegetation and floatage. A practical and very effective method of doing this is to raise the water level at least twelve inches during the spring. This will drown out the land vegetation on the edges. Then, by lowering the water to normal about the middle of June, the floatage will be either stranded or carried off, and the sun will kill any water vegetation which may have come up. This should be repeated each year. The effectiveness of this method is fully shown in one of our ponds. Repeated examination proved it to be free of larvae and upon inquiry it was found that because of the small water supply, the miller would hold the water as high as possible during the spring rains so as to have enough water to operate the mill every day during the first of the summer. About the middle of July the water would get so low that he could operate only two days each week.

Around towns and villages it is practical from an economic standpoint to do drainage. Smithfield is a good example of this. But in isolated farms, if the breeding areas are very extensive, we have to depend on screening. Screening should be advised as a routine measure everywhere in this section. Bear in mind, however, that for it to be effective several things are necessary. The screens must cover every opening including the fireplaces. They must be tight fitting and not coarser than 16 mesh. The folding screens which so many people use are not at all effective against mosquitoes. They keep out flies fairly well but, since they are covered with 12 mesh wire, some mosquitoes work through them, and they always leave an opening between the upper and lower sash. A mosquito will buzz around a window all night trying to get in and, if an opening is there, she is very liable to find it. In the morning she spends less than thirty minutes trying to get out, and then hunts a dark place, probably under the bed or in a closet, where she roosts until the next night when she attacks some other member of the family. It is usually in a home which is *screened* but not *effectively screened* that several members of the family have malaria at the same time. Another point which it may seem foolish to mention but is often forgotten is that all members of the family must stay behind the screens from sunset to sunrise during the summer and early fall. They are, of course, safe out of doors while moving, but they cannot expect the screens at home to protect them when they visit their neighbor at night, or when they go to church and sit in the flivver during night services as so many do.

Our last point of attack is the attempt to prevent the mosquito from becoming infected. The malaria case in its incipiency, and for a week or ten days after the chills start, is not capable of infecting the mosquito. After this time the gamites or sexual forms of the parasite begin to make their appearance in the blood. These gamites remain in the blood indefinitely in untreated cases, producing no symptoms in the patient. Relapses in the patient are produced by the stirring to activity of the asexual forms of the parasite which lie quiescent in some organ such as the spleen. The mosquito to become infected must swallow both male and female gamite. Copulation takes place in her stomach and the pregnant female gamite penetrates the mosquito's stomach wall, where she produces the next generation of sexual form of parasite. These wander in the lymph stream all over the mosquito's body, a favorite spot for them to accumulate seeming to be the salivary gland. Apparently they produce no ill effect since the infected mosquitoes live about as long as uninfected ones. After several generations of the sexual type, or in about twelve days, asexual forms begin to appear, and these, being injected into another person, produce another case of malaria.

To summarize, only chronic cases infect the mosquito and twelve days must elapse before the mosquito can infect man. This shows the importance as a preventive measure of clearing up the chronic cases, and the best method of doing this is to give a dose of quinine every night for eight weeks. The Standard Bass

treatment is ten grains each night. I believe that in Virginia, where we seem to have a less resistant form of parasite, five or six grains would be sufficient.

REPORT OF TWO CASES OF FOCAL INFECTION.*

By GEO. T. KLIPSTEIN, M. D., Alexandria, Va.

Mr. President and Gentlemen of the Medical Society of Fairfax County, District of Columbia and Maryland:

I am presenting for your consideration this morning, the report of two cases of focal infection, not that I expect to present any new thought, but rather to emphasize the great difficulty of accurate diagnosis in some of these cases. Focal infection has time and again been declared a very dangerous element in human economy by writers from many standpoints. Complete systemic studies of the foci, especially in relation to the diseases of the urinary and gastro-intestinal tracts are necessary for a proper recognition and treatment of these conditions. Injurious effects of the dental foci upon the heart, joints, kidneys and vessels are now generally recognized, but the far-reaching effects upon the urinary and gastro-intestinal tracts are frequently overlooked.

Case I.

Twenty-three years ago the man whose case I am about to report, was as fine a specimen of health as could be found in Arlington County, Virginia. There were five sons and one daughter in the family, all healthy. His father and mother were both strong people. His mother died from liver trouble in her 86th year, and his father in 72nd year. Twenty-three years ago this man met with an accident that caused two of his incisors to be broken off just above the gum and they were crowned with gold. About six months afterwards, his bladder began to give him trouble. From this time up to eighteen months ago, I give his story as he typed it for me. I do this because he is a man of considerable intelligence.

"About twenty-one years ago I noted something wrong with my bladder. I had to urinate about every three hours, but had no pain. Doctor T. at Falls Church, Va., gave me some medicine, but it did not relieve me. Sometime later I came to Alexandria, Va., and was treated by Doctor M., who gave me medicine and used sounds on me for awhile. The treatments became so painful that I could not stand them. Doctor M. wanted me to go to Doctor Y. at Johns Hopkins Hospital, but I did not go at that time. In the meantime I took every kind of medicine anyone thought would be good for me. After quite a while I went to Doctor K. and he gave me practically the same treatment as Doctor M. I had to stop the treatment again, however, as I could not stand the pain it caused me.

"Sometime later, I went to Doctor F., of Washington, D. C. He examined me, taking an X-ray of the kidneys and bladder and cystoscoping the bladder, and pronounced my trouble as cystitis of the worst kind. He irrigated the bladder for a long time, without any noticeable improvement. He then put me in the hospital, where he opened the bladder, cleaned it out, painted it with iodine and put a tube in for draining, leaving it there for about six weeks. I could notice a little improvement for a short time, but then I began to get worse, lots of blood and pus being found now and then in the urine. I would have bad pains in my left side, and had to take hypodermics to get relief. Finally I had a bad spell with chills and fever, and, as Doctors C. and S. could do me no good, they sent me to Johns Hopkins Hospital for treatment under Doctor Y. He examined me thoroughly, using the X-ray, catheterized the kidneys, and washed the bladder every day. After being there two weeks, he did what they call a 'punch operation,' cutting a growth from the neck of the bladder. Five days after he operated, he sent me home. The next day I had a hemorrhage of the bladder, and could not pass the blood. Doctor C. was called in. He could not relieve me, but suggested calling Doctor F., of Washington, which we did. He used a syringe of some kind, and drew great clots of blood from the bladder, leaving a catheter in for several days. After I became strong enough to take the trip, I went to Doctor Y., of Johns Hopkins, twice a week for about a year. He continually irrigated the bladder without any improvement being noticed, so I discontinued the treatments. After a short time, he wrote and asked me to come and let him examine me again, as he was very much interested in my case. After the examination he wanted me to come back to the hospital and let him open the kidney, as he said they had found a little pus coming from it, but I did not go. After

*Read at the meeting of the Medical Society of Virginia, Maryland and District of Columbia, in Alexandria, May 21, 1924.

this I moved nearer Alexandria, and had Doctor K. attend me during several bad spells with chills and fever. Much blood and pus were passed with the urine all the time. When Doctor K. was taken sick I was suffering so badly that I decided to go back to Doctor F., of Washington. He kept me in the hospital for three weeks and washed the bladder every day using a large syringe to draw the water out of the bladder through a catheter. I think the syringe was too powerful however, as it started a hemorrhage. Afterwards I got a little better and left the hospital. Doctor F., of Washington City, said my case was the worst that he had ever seen, and he could not understand why the treatments did me no good. In the meantime, I had moved to Alexandria. In a short while I was taken with pains in my left side. Doctor L. was called in, but he could only give me temporary relief. After seeing me in several attacks he thought the trouble came from the kidneys and wanted to consult some other Doctor. Doctor M. was called in consultation, and it was decided that the kidney had to be operated on, but I did not consent. Upon having another hemorrhage of the bladder, I called in Doctor L. and Doctor M. The bladder being contracted, they could not pass the catheter. Finally the blood came, and they passed the instrument, leaving it there for a few days. They told me I should have my kidney operated on, or I would not live through many more attacks, but I could not consent.

"We called in Doctor K. and he took the case insisting that I go to Grace Hospital, Richmond, Va., under Doctor B. After being confined to my bed for eight weeks, Doctor K. got me strong enough to take the trip. My bladder at this time had a capacity of only one ounce. Doctor B. tried to cystoscope the bladder, but could not, as it was contracted so he could not pass the instrument. He began at once to wash the bladder, using a steel catheter. He X-rayed the kidneys and bladder, but it failed to show anything, except that it outlined the bladder as a little hard ball. After being in the hospital for a few days, one of my teeth began to ache. They had the dentist extract it, and an abscess was found at the root. They at once X-rayed all of my teeth, and found seven more with abscesses at the roots, all of which were extracted. The two that had been crowned about the time my bladder trouble first began had pus and the roots were black and decayed. Doctor B. continued to wash the bladder twice daily with salt and water. After each washing he injected a small quantity of B. B. culture in the bladder, leaving it there. At the same time he gave two Bulgarian tablets after each meal in a little sweetened water. After three weeks I was able to sit up, and was very much improved. At this time I weighed 125 pounds. After staying in the hospital for ten weeks, Doctor B. examined the bladder, and said it looked as though healing. He then sent me home for Doctor K. to treat. Doctor K. is giving me the same treatment, and, in connection with that, he injects a five per cent solution of Argyrol into the bladder twice a week, increasing the strength of the Argyrol each week. At this time there is no blood in the urine, and very little, if any, pus. I have gained 43 pounds, have a splendid appetite, sleep good, have no pain and feel fine."

CASE II.

About eleven years ago there came under my observation a middle-aged man, an active, go-ahead business fellow suffering with gastro-enteritis. He had at that time, and at all times while under my observation, very little elevation of temperature. He averaged six or eight stools and sometimes as many as sixteen stools daily. His bowels were so completely from under his control that sometimes at night, during his sleeping hours, there would be an involuntary action of the bowels. This man's hours of work were very long, sometimes extending into the wee small hours of the night. He was rather careful in his diet; totally abstemious as to stimulants and tobacco, and not much of a meat eater, but as to other forms of diet he was a rather liberal feeder. On the mother's side of the family, he was the descendant of a very strong parent, but on the father's side the health was not so good. Other members of his immediate family were phenomenally strong. The family history is above the average. During the first three years of treatment, there would be times when treatment seemed to make marked improvement in the condition, and then the trouble would return with increased violence. About three years after the beginning of my treatment I requested that he consult a gastrologist. This suggestion was acted upon, and for about two years the specialist's treatment was carried out without any particular improvement. Four years ago the man was stricken with broncho-pneumonia, and his life was despaired

of for some time. After the danger of the broncho-pneumonia had passed, the entire gastro-intestinal tract functioned so badly that the man was almost reduced to a skeleton, weighing 97 pounds, though he was five feet, eight and three-fourths inches tall. At this time, which was about three months after his recovery from the attack of broncho-pneumonia, he was sent to the country, and stayed there for three months with very little improvement. Five months later he was again taken down with fever, temperature 104,° this time an extensive attack of bronchitis. This lasted about three weeks. On recovering from this attack evidences of pyorrhoea were detected, though there was no evidence of cavities or painful teeth. X-ray examination showed abscesses at the roots of all the teeth. After having his teeth extracted, the patient's chest trouble not only cleared up, but the intestinal trouble of eleven years standing was entirely relieved with almost no medication, save Tonic of Syrup of Iodide of Iron, alternating with Tincture Chloride of Iron. The contents of stomach and feces were carefully examined and no causes of trouble were found; no hookworm nor evidences of tuberculosis were present. The stomach secretion was slightly lacking in hydrochloric acid.

This man is today doing a large amount of work and indulging in all varieties of food with absolutely no deleterious effect, his digestion and assimilation being up to the normal.

SOME REFLECTIONS UPON CERTAIN PHASES OF PREVENTIVE MEDICINE IN THE GROWTH AND DEVELOPMENT OF CHILDHOOD.*

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When we speak of preventive medicine, we almost intuitively think of hygienic conditions, dietetics, immoral or imprudent conduct, climatic changes, occupational pursuits, geographical situations, environment, etc. Along with these, and intimately associated with them, we recall also the role of contagious and infectious diseases, and the pestilence of insect life. With all these, involving varied courses of study with their complex and complicated problems, we have only entered the threshold of preventive medicine. Other phases of the subject, perhaps even more intricate and complex, present themselves among which we find what may be called the automatic activation of the internal secretions of the body, with its sympathetic responses and correlative influences. Here we have problems which we are compelled to face: and in entering any discussion of this subject I wish frankly to state at the outset that the functions of the endocrine organs in their varied contributions for growth, physiological balance and development are imperfectly understood. This fact, however, should not deter us in our desire to grasp and utilize such facts as are now well known.

The Thyroid Disorders

Among the various endocrine disorders that we find in childhood, I wish to discuss those especially of the thyroid gland. This gland, as you all well know, has much to do with the retention and distribution of iodine as a nutritive substance for the system, and as a regulator in the physiological processes of metabolic activity. Indeed, the action of the thyroid has been spoken of as "the fan for the fires of metabolism." In its action, then, we often have two extremes in its pathological work; namely, over-activity and under-activity—the former found in Graves' disease (hyperthyroidism), the latter in myxedema (hypothyroidism). In Graves' disease, it is said, "the fires of metabolism burn high;" but in myxedema "they burn low." When we keep this before us the syndrome of each condition can be easily retained in mind, if not entirely digested in thought. For instance, in Graves' disease, or exophthalmic goiter, we have thyroid enlargement, protrusion of the eyes, tachycardia, restlessness, alertness of mind and body, insomnia, irritability of temper, often a good appetite, but disturbances in intestinal motility with increasing loss of weight. In other words when you think of Graves' disease you may express it in two words—*automatic motion.* On the other hand, in the syndrome of myxedema (hypothyroidism) we have usually absence of thyroid enlargement, no protrusion of the eye, but often retracted eye with narrow, slit eye-lids, swollen hands and face, skin dry, coarse and often times waxy in appearance, hair lacking in lustre and often falling out, appetite poor, digestion often disturbed with abdominal tympanites and obstinate constipation, yet often gain-

*Read before the Walter Reed Medical Society, at Newport News, Va., May 14, 1924.

ing in weight with tendency toward obesity; given to sleepiness, dull and stupid in appearance, slow in movements and inattentive, and slow in heart's action. This syndrome may also be summed up in two words—*general sluggishness.*

Now, when we have the syndrome of either of these conditions fully developed, the diagnosis of each can be easily made, but in cases in which we have the disordered functions of two or more endocrine glands, the diagnosis may become far more puzzling, and even more so, when the patient is also suffering from other sources of an entirely different nature. Moreover, the mild forms, or, what we may call the intermediate state of either overactivity or underactivity in endocrine derangement, when combined with other pathological processes, as toxemic disorders, pyogenic absorption, deficiences in diet, etc., furnish additional difficulties in each given case. If these observations are correct in their application to such disorders in adult life, how much more difficult is the problem of an accurate diagnosis of the same pathological conditions when found in the various ages of childhood. Here we have to deal with the anatomical structures in their undeveloped stages, the nervous system in the most delicate shades of sympathetic response to every sort of psychological or materialistic irritation; with the reflexes from almost any anatomical source easily exaggerated, with the emotional side of nature almost on a "hair-trigger," with the correlative relations of the internal secretions in the closest sympathy with the easily disordered digestive tract, each often acting and reacting upon the other as to appear to be working in a vicious circle. Add also to all these things the fact that we are often dealing with a patient with whom nearly every sort of external and internal lack of adjustment is received with an exaggerated degree of repulsiveness, and you need not be surprised that an uncertain diagnosis is often our lot. Notwithstanding all these difficulties in dealing with our subjects, the thyroid disorders in children, as well as in adults, are gradually becoming better known, and their causes, though numerous, are becoming more and more apparent.

Now in dealing with these disorders, I wish to confine myself almost entirely to deficiency of function—a *thyropenia.* This condition is quite common, and far more prevalent than is generally supposed. Many cases develop and go on suffering for years with a mild form of the disorder without the real nature of the trouble being even suspected. I ask the question: why should this be? My answer is, most of us study thyropenia in its well developed form. Nearly all the medical books give it to us in the form of an advanced myxedema, and in actual practice, we seldom see it in this form. Again, when we do see a thyropenia it is not only in a milder form than we are expecting to find, but it is often mixed with something else.

Thyropenia with other endocrine disorders.—In making an effort to diagnose a thyropenia we are often confronted with symptoms of parathyroid disturbance. This is especially so in cases of glandular insufficiency; and just here it may be said that parathyroid overactivity is very little understood; but that its under function is becoming quite familiar to the student of endocrine disorders. However, when this disorder is associated with a comparatively mild form of a thyropenia, the symptoms of each may serve to obscure the real nature of the case. For instance, here is a little girl about 5 years of age, rather dull in appearance, inclined to obesity, face pale and sallow, more or less waxy looking and expressionless; hair without a normal degree of lustre, eyes dull and sleepy; hands and fingers rather short and clumsy, teeth poorly developed; abdominal tympanites with obstinate constipation. If we stop just here, with the absence of any of the acute febrile diseases of childhood, we would have very little difficulty in making a diagnosis. But let us now slightly modify this syndrome, making it a little less pronounced and add to it frequent, painful muscular contractions in the little patient's extremities along with spasmodic disturbances in the gastric region, and the picture looks different, and the diagnosis becomes less easy. In such cases the condition is likely to be taken as the natural result of mere errors in dietetics. And in the light of McCarrison's discoveries in the relation of food nutrition to the organs of internal secretion, this latter view may be in a measure correct, but it is by no means an accurate or comprehensive view of the above problem.

This is no imaginary picture. I have had in my own practice within the last year just such a case. The syndrome of a thyropenia was fairly well developed, almost classical, if you only eliminated the symptoms of the gas-

tric region. But these latter symptoms seemed to throw a veil over the real nature of the case in the eyes of some two or three excellent physicians. They had all concluded that the gastric spasms were the result of dietetic errors, and careful attention for weeks was given to the little patient's diet, all without improvement. When the case was turned over to me with her history, I was almost immediately impressed with the syndrome of thyropenia; but these gastric symptoms seemed a little puzzling until I examined the mouth and saw how the teeth were giving up their enamel, as they often do in parathyroid deficiency when the general system is suffering from calcium poverty. Considering the history of the case and the varied symptoms as a whole, upon the theory of probabilities, my diagnosis was made. She was suffering with pluriglandular deficiency, involving both the thyroid and parathyroid glands, and the treatment was directed with the view of supplying the necessary ingredients that were lacking in the deficiency of these internal secretions. She was given a lactated pepsin mixture with small doses of iodine, t. i. d. after meals, and an hour later small doses of calcium iodide. In addition to this, small doses of calcium lactate were given morning and night. Within a short time the symptoms gradually, but steadily improved, and now, after four months' treatment, mostly of very small doses of calcium iodide, she has completely recovered, is active, sprightly, happy, with the disappearance of all suggestions of endocrine disorder—yes, a perfect, beautiful specimen of health. This case was especially interesting, not only from a scientific standpoint, but in the restoration of great happiness to a most distressed family. Other cases of like conditions and of similar import could be given with approximately the same degree of success, but the time allotted me does not allow me to continue such illustrations.

It may be well to add here, however, that many of these conditions of endocrine disorders are of a chronic nature, and may be primary or secondary. Moreover, they may be organic disorders, or merely functional or sympathetic, playing the part of a hormonic response in the morbid processes of the internal secretions. This being the case, I wish to emphasize that many cases of thyropenia need a long course of medical care, and ought to be seen at stated intervals according to the nature of the case. To dismiss a case because there has been decided improvement, and the family is well satisfied with the results is often a great mistake. I have reluctantly done this on several occasions. Some of these little patients had improved wonderfully with six or eight weeks' treatment, and were dismissed simply because no persuasion could convince their parents that these children needed further medical attention. Some of these little patients soon drifted back to their former condition, and seemed to come to a standstill in growth and development for even as high as two or more years. When we are sure of our diagnosis, this matter ought to be impressed upon the child's parents, even at the risk of the layman's suspicion that we are playing a game of commercialism over a child, already restored to perfect health.

Before leaving this phase of my subject, let us consider a little further these endocrine disturbances of the pluriglandular type. I refer to those with parathyroid involvement. Many of these are suffering with a latent form of parathyroid deficiency in combination with a mild form of thyropenia, and such cases may never develop the classical syndrome of tetany. Indeed, the syndrome of tetany may be described in many cases as a violent outcry of nature for calcium nutrition: and this nutrition in the latent cases above mentioned, though in a measure decidedly deficient for growth and health, is still not at so low an ebb at any time, as to usher in the convulsive symptoms of calcium hunger. In these cases a careful examination of the child's teeth will often lead us to a more rational view of the case in question. For instance, when we find defective teeth with parallel lines or hole-like depressions upon the incisors or canines, we should carefully consider these as suggesting parathyroid deficiency. Moreover, any evidences of pyloric stenosis, or gastric dilatation in such cases may also give us additional light in arriving at a correct view of the case. These evidences, however, may not still furnish the classical syndrome of tetany. Dr. Lewellys Barker has cited from his own practice three endocrine cases of gastric dilatation—all three sisters—and only one of these, he states, developed the characteristic symptoms of tetany. Returning to the condition of the teeth in these endocrine cases, I wish to say that this phase of my subject is attracting wide attention in medical circles: and, I may add, if we

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could acquire a more perfect understanding of the formation and preservation of the teeth in their relations to the endocrine secretions, the digestive apparatus and the alkali balance in the body fluids, we would make a great step forward in obtaining a keener insight into the shifting changes of these morbid conditions of endocrine disturbance. Dr. George Weaver, professor of pathology in Rush Medical College, has recently given a striking contribution to this dental phase of the subject. In this discussion he speaks as follows: "McCarrison proves conclusively that food deficiencies produce a definite action on the endocrine apparatus, and it is through this apparatus that these changes in the teeth are brought about. As long as the enamel remains intact, there can be no caries. Enamel, in health, progressively hardens as life proceeds. This hardening is due to the progressive laying down of lime salts, taken from the body store of ionic calcium. This store is, in health, equivalent to the need of the individual at the time, and is preserved by the endocrine apparatus, which is also a fixer of lime salts in the teeth. If the endocrine apparatus is thrown out of balance in the direction of calcium starvation, this reserve store is diminished and fixation in the lime salts in the teeth is interfered with. An upset in endocrine balance, youth and pregnancy will contribute toward calcium starvation. Calcium starvation will lead to a diminished calcium index in the saliva, with lessened alkalinity of that secretion, thus directly leading to caries." In conclusion he states: "Endocrine derangement will account for all the conditions leading to dental caries, whether they are diet, lack of vitamins, altered salivary secretions or what not."

Another ray of light comes from MacCollum and Vogtlin on this subject of calcium metabolism. In a series of experiments upon dogs that had had their parathyroids removed, and in consequence had developed tetany, it was found that these convulsive attacks of tetany could be easily controlled and entirely stopped by the administration of calcium acetate and calcium lactate. These experiments led these men to "conclude that the parathyroids are actively engaged in controlling the metabolism of calcium in the body." (Barker).

In conclusion, let me emphasize the following points: (1) Some degree of thyroid deficiency is very prevalent among children, and we should never wait for the syndrome of myxedema before detecting this condition as a factor toward ill-health. (2) When looking for symptoms of thyroid deficiency we should look also for other disturbing elements of endocrine nature, as some degree of a pluriglandular disorder is likely to be found. (3) It is well to bear in mind that various phases of the pluriglandular disorders are often found with that of the thyroid—such phases as involve the hyperplasias of the lymphoid structures (tonsils, cervical glands, etc.), and that these often exercise a reciprocal relationship with each other, thus obscuring the primary factor in the etiology of the disease in question. A practical point, moreover, should be noted here that the same treatment which we use for simple thyropenia, that is, thyroid extract or other forms of the iodine treatment, is also more or less beneficial to these more complex forms of thyroid disease. (4) We should always bear in mind the close relationship of many of these cases of thyroid disorders with the digestive tract. According to Dr. Lewellys Barker, their relations are so responsive that at times they react upon each other in a vicious circle. Moreover, when the two disorders are associated, small doses of iodine added to some appropriate digestive agent, as a therapeutic measure, are doubly indicated. (5) In reviewing the conflicting literature as to the exact part the parathyroids play in the metabolic processes of the body, let us remember that in cases of parathyroid deficiency modern investigation tends to show that such cases are suffering with lack of calcium support and assimilation. This view is also well supported by the beneficial effects of calcium therapy in controlling the convulsive seizures of tetany, and in its capacity to check the chronic disintegration of caries in the teeth.

Finally, the subject before us is one of great import. No one knows when we correct these morbid disturbances in the growth of little children how far reaching our labors may be. Let us rise to the occasion, and give our best thought and talent to this vitally important subject, and God will crown each one of us with the richest of blessings—a life of great usefulness.

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EPIDEMIOLOGICAL STUDIES OF TYPHOID FEVER IN VIRGINIA DURING 1923.

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The data reported in this paper were obtained in case studies of typhoid fever investigated by the Bureau of Epidemiology of the Virginia State Board of Health from June 18, 1923 to December 31, 1923. The cases occurred in small groups which could not be designated as epidemics. Frequently they did not constitute an unusual amount of typhoid fever for the season and community. Some of the groups involved single families, two of them were in institutions, one involved a series of cases scattered over four counties. Nearly all of them occurred under rural or near rural conditions of living. The results of the studies are published because it is believed that they point to important factors in the spread of rural typhoid fever which are often overlooked, or are not given sufficient weight. We believe that they constitute a representative sample of the typhoid fever cases which occurred in Virginia during the season of 1923. The authors wish to acknowledge their indebtedness to Dr. H. McG. Robertson, of the United States Public Health Service, Mr. Aubrey H. Straus, Director of Laboratories of the Virginia State Board of Health, and to Dr. W. A. Brumfield, of Blacksburg, for carrying out some of the investigations on which this report is based and to the many physicians who gave such willing help in the study of their cases.

Nearly all of the studies of this kind which have been published involve urban conditions, but numerous studies have been made and published which take up the question from the point of view of the search for carriers. Notable work of this character has been done in Minnesota and is reported by Chesley.[1] He records the identification of sixty-nine carriers within three years by the routine work of the Minnesota State Board of Health. A more intensive study of rural communities was undertaken by Norment[2] who studied the endemic foci of typhoid fever in fifteen communities in two counties in Maryland. These were classified with reference to the personal source of the infection, from recognized cases, unrecognized cases, or from carriers. In a study of fifty-seven cases, Norment was able to locate the sources of thirty-two, or 56.1 per cent. while the sources of twenty-five, or 43.9 per cent, were undetermined. Nineteen of his cases, or 33.3 per cent, acquired their infection from demonstrated carriers. Norment concludes that contact with carriers is the most prolific source of rural typhoid and that contact with unrecognized cases is the next most important source.

The studies here reported had as their objective in each case the location, not simply of the infected vehicle of infection, but of the personal source from which the infective material came. The methods used were those which are used as routine by all health officers in the investigation of cases of typhoid fever, but special stress was laid upon the previous occurrence of typhoid fever in the community and especially in the family and among the associates of the cases investigated. Ample provision was made in every investigation for collecting specimens of feces for culture from all persons who gave a history of frequent association with typhoid fever in previous years. One hundred and nineteen cases were investigated in twelve separate studies.

Absolute proof of the source of a case or an epidemic of typhoid fever is not often obtained. In none of our studies were we able to recover *B. typhosus* from any article of food and to say we had a complete chain of evidence that the infection was carried to the patients by that particular article and by nothing else. Our conclusions had to be reached on the basis of evidence which was less complete. It was frequently shown that a given article of food had an opportunity to be infected; the article in question was consumed by certain persons, and among them a number developed typhoid fever; no cases developed among persons who had not consumed the article of food in question. Such a chain of evidence was held to incriminate the article, provided there were no other facts

1. Chesley, A. J., Burns, H. A., Greene, W. P., Wade, E. M., Three Years' Experience in the Search for Typhoid Carriers in Minnesota. Jour. A. M. A., June 23, 1917, vol. 68, p. 1882.

2. Norment, R. B., Jr., Specific Sources of Rural Endemic Typhoid. Public Health Reports, vol. 37, pp. 2094-2108. Sept. 1, 1922.

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pointing to another vehicle for transmitting the infection.

As regards the infecting agent, our cases were classified as follows: milk, other food, water, direct contact, poor sanitary surroundings. Under direct contact were placed those cases who were in such intimate contact with known cases that opportunities for the transfer of the infection were numerous. All of the cases placed in this group, except one, were women and children. Those persons in whose cases the blame was placed on poor sanitary surroundings lived in crowded communities where privies were either absent or were grossly inadequate. Flies were abundant in every instance and were probably the usual agents for the transfer of infection to food.

The classification of the infecting agent on this basis was as follows:

Total cases investigated	119	
Infection received in milk	37	31.1%
Infection received in other food	1	0.8
Infection received in water	13	10.9
Poor sanitary surroundings	14	11.8
Direct contact	24	20.2
No solution	30	25.2

In regard to the personal source of the infection, the cases were classified as follows:

Total cases investigated	119	
Infected from known cases	74	62.2%
Infected from carriers	15	12.6
No solution	30	25.2

If this series of 119 cases may be taken as a fair sample of the rural typhoid fever in Virginia, it appears that it is possible to trace the origin of more cases in the relatively stable rural population of Virginia than under circumstances existing in other states from which similar reports have been made. It is not surprising that the most important source of infection was found to be in known cases of typhoid fever. The fact that 12.5 per cent of the cases received the infection from carriers is less than the estimate of Norment for two Maryland counties, but both series of cases are too small to be of value for comparison. The striking fact is that, in two independent series of cases in these two states, such a high proportion have been found to be traceable to proved carriers.

It appears to us that the importance of milk on the farm as a vehicle for carrying typhoid infection has not been sufficiently stressed. More than 30 per cent of our cases apparently received their infection in milk. In more than half of these cases the milk was infected by persons with typhoid fever who were still able to do a little work. The milking was given to them as a light task. In one family a sick boy came home from the city and milked for a few days. Seven of his family were infected almost simultaneously. In another family a woman became sick with typhoid fever which she apparently contracted from infected cake prepared by a carrier. The carrier, a neighbor, wished to assist the family in their trouble, so she helped with the milking during several weeks following. The result was the infection of thirteen out of the fourteen persons in the family, including a daughter and a son-in-law who came from another state. Two deaths occurred in this small outbreak. The prevention of accidents of this kind can come about only by prolonged education of rural communities in the dangers which are involved in allowing sick persons or carriers to handle milk or food.

Summary

1. One hundred and nineteen cases of typhoid fever were investigated in various parts of the state.

2. The vehicle which was found to have transmitted the infection in the greatest number of cases was milk.

3. The number of cases which were traced to known carriers constituted 12.5 per cent of the number investigated.

Conclusions

Effective work in the prevention of typhoid fever can be done by searching for the personal source of each infection, as well as the vehicle which transmits the infection. Carriers play such an important part in initiating rural typhoid fever that they must be sought out and prevented from infecting food, in order that full benefit can be obtained from improved sanitation.

NOTE.—The investigations included in this report were conducted by the Bureau of Epidemiology of the Virginia State Board of Health and were supported in part by the International Health Board of the Rockefeller Foundation.

A PRELIMINARY REPORT ON THE USE OF THE SCHICK TEST ON 1,482 CHILDREN AND THE IMMUNIZATION OF 1,011 CHILDREN BY THREE SEPARATE DOSES OF THE TOXINE-ANTI-TOXINE MIXTURE—ONE C.C. LETHAL DOSE.*

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In the autumn of 1921 a severe epidemic of diphtheria appeared in the Beverley Manor Academy, five children being stricken in one day and six being taken ill on the next day. The cases were isolated and treated by their several physicians. So far as was possible the contacts were isolated and were given 1,000 units of antitoxine as a prophylactic, while, with the assistance of Dr. A. F. Robertson, the other children in the school were given the Schick test and all positive reactors were immunized. Five more cases of diphtheria developed in the school; three after the giving of the Schick test, one after the administration of one dose of toxine-antitoxine and one after two doses of the toxine-antitoxine had been given; but all of these cases were among the positive reactors. The next year the Schick test was given in the schools at Fishersville, Churchville and Mount Sidney, where serious epidemics had been seen, and all susceptibles were immunized. During the following year the same procedure was carried out in the schools at Middlebrook and Newport. The policy has been to make a complete job in each instance; that is, to require all the children to be subjected to the Schick test and to immunize all of the positive reactors.

From observation of the results in these instances, the following conclusions have been reached:

1. It is better that the Schick test be given to all the children in a school, and only those showing a positive reaction be immunized, as this is more scientific than to administer the toxine-antitoxine mixture to all the subjects. If the test material be given properly—that is, between the layers of the skin—the reaction will, in my opinion, be very accurate and reliable. I have frequently observed that when the lower layer of the skin had been accidentally punctured and the characteristic blister not obtained, the reaction would fail to appear while if a proper blister be raised in another site, the reaction would be clearly apparent.

2. It has been noticed that if the first dose of the toxine-antitoxine mixture be administered into the subcutaneous tissue, a reaction will appear in susceptible cases which will indicate the necessity for continuing the treatment. This phenomenon was observed in quite a number of our children, but as only positive cases were treated and as the reaction from the first dose of toxine-antitoxine was by no means constant, it appears of no value as a diagnostic procedure.

3. Since it is a well recognized fact that all children are not fully immunized by a standardized dose of toxine-antitoxine, it seems that an application of the Schick test after the lapse of a year from the time of immunization would be the most important use of the test. In the schools in which this work has been done, all of the children have been required to take the test, and if positive results have followed, immunization has been enforced. As a result, in all of the immunized communities the children under school age have been totally free from infection,—no casas at all occurring in them. Judging by the reports, in communities where only such limited numbers of children as voluntarily submitted to immunization were treated and in which carriers and mild cases were not eliminated, there was no diminution whatever of infection among children under school age.

The people of Augusta County have been educated to having the Schick test made, and we find that it appeals somewhat to the sporting proclivities of both children and parents. They are willing to take the chance of being among the forty per cent of immunes, and should they prove to be susceptible, there is quite a rivalry among the children as to who will show the most pronounced and characteristic reaction. When it is clearly demonstrated to both parents and children that susceptibility exists, it is rarely found that they are not glad to take the treatment, but they naturally balk at what is probably unnecessary medication.

That immunity or susceptibility runs in families, including near relatives, was observed from the first work in our schools. This is now so well recognized that I deem it necesary only to mention it in passing. Untoward happenings have been very few. There have been no abscesses and no infections of arms, nor have there been any serious inflammatory

*Read at the meeting of the Medical Association of the Valley of Virginia at Harrisonburg, May 29, 1924.

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reactions. There have been two cases in which an eruption resembling psoriasis occurred following treatment with other serums. One of these was rather serious, but recovery was rapid and complete.

My conclusion is that the work is very well worth while and should be continued and extended. I think that using the Schick test first and only administering the toxine-antitoxine mixture to positive reactors is preferable to giving this latter to all cases indiscriminately, and that requiring all children in the schools where the test is applied to take it and the immunization treatment if needed, to eliminate as many carriers and unrecognized cases as possible, is more than justified. I think that pre-school-age children may well be given the toxine-antitoxine mixture without the previous Schick test by their family physicians because of the high percentage of susceptibility among very young children.

ACQUIRED CHARACTERS AND HEREDITY.

By CASPER L. REDFIELD, Chicago, Ill.

When the war broke out in 1914, England sent over to Belgium such soldiers as she had available, and commenced to raise a new army of millions of men. As fast as these men were enlisted they were sent into training camps. The military authorities under Kitchener said that these recruits could be taught all that a soldier needed to know in about six weeks, but they were not sent to the front at the end of six weeks. They were kept in camps and given strenuous physical training for more than a year before being sent out to fight. And they were thus kept in training, in spite of the fact that such training was expensive, and in spite of the fact that there was desperate need of reinforcements in Belgium all of the time. Kitchener and his aids simply refused to permit these recruits to go to the front until they had had more than a year of training.

At that time Kitchener was 64 years of age. He had been educated in the Royal Military Academy, and had behind him all of the military experiences of the past. He saw service in the Franco-Prussian war of 1871, and later had extensive military commands in Egypt, the Sudan and South Africa. He well knew what soldiers had to stand in war, and what was necessary to enable them to stand it.

When Canada entered the war she also gave her soldiers more than a year of intensive physical training before sending them across the sea. And when the United States joined the others, we also did the same thing. But we did some additional things. We had our medical men examine the recruits as they were enlisted, and watch these millions of men under this system of training. The medical men were astounded at the results they saw. When the American Medical Association next met, they passed a resolution recommending "universal military training for all men for the mental and physical benefits obtained thereby." That recommendation was not for military purposes. It was for the "mental and physical benefits" which came from training.

Early in 1923, William J. Herdman, of Toronto, Canada, addressed letters of inquiry to the National Research Council, the Eugenics Record Office, the Bussey Institution for Biological Research, to some other places, and to certain prominent biologists. These letters recited what had been done in England, Canada and the United States in the way of training soldiers, and referred to the recommendation of the American Medical Association in regard to the mental and physical benefits. The letter then put the following question:

"Has there been any scientific research on man or the lower animals to determine whether such benefits are inherited by offspring?"

The letter then added a paragraph explaining the distinction between the effects produced by exercise and the effects produced by the environment, and closed by saying: "If there are any published records of investigations. * * * I would like to examine those records."

The reply from the Bussey Institution said:

"The effects of training would come in the category of characters which biologists call 'acquired characters' which have been shown by the investigations of Weismann and many others to be not subject to inheritance."

Now observe that this letter does not say that this matter had ever been investigated. It simply said that "training" would come in the category of things investigated by Weismann. The work of Weismann referred to, consists in cutting off the tails of mice, and then breeding those mice to see if the offspring would be born with short tails. The reply from the Bussey Institution therefore amounts to a statement that training men to get strong muscles in their arms and legs comes in the same class of things as cutting off those arms

and legs. If that piece of scientific information had been conveyed to Kitchener in time he could have found it cheaper and easier to cut off the arms and legs of his raw recruits than to train them.

The reply from Princeton University said:

"I am sorry to have to tell you that there has been no satisfactory research of this character."

That reply does not say that there has been no research on this subject. It simply says that there has been no "satisfactory research." It is one of the peculiarities of a considerable number of men in the biological field that nothing is satisfactory to them unless it confirms their preconceived opinions. That that is the situation here is evident from the statement itself. The statement that there is "no satisfactory research" admits that there is some research which is not satisfactory and it also admits that there is nothing to support this opinion.

The reply coming from Johns Hopkins University referred to my work, to some experiments by Kammerer reported in a German book and said to relate to the "inheritance of environmental effects," and to some minor items. When Mr. Herdman wrote that he "was looking for the results produced by the actions of the animal, and not those produced by actions of the environment," a second letter from the University stated that there was "nothing to add that would help you."

It will not be necessary to follow through the other replies to the question asked. It is sufficient to say that not one of them pointed to any record or evidence of any kind to indicate that the mental and physical benefits coming from training are not inherited. The common statements to that effect had their origin in the fact that biologists have confused acquired characters with effects produced by the environment. Acquired characters are powers which have been developed by exercise. Effects produced by the environment are mainly, if not exclusively, injuries of some kind. The damage produced in a muscle by a cut or a bruise is not in the same category with powers developed by exercise.

A man may become an athlete by physical training. What kind of an environment will make an athlete out of him if he sits still? Obviously, none. And obviously it is the exercise and not the environment which produces strong muscles. If, of two things, one will accomplish a definite result and the other will not, it is evident that these two things are not in the same class. Do not permit anyone to argue that acquired characters are not inherited simply because effects of the environment are not inherited.

Getting strong muscles by exercise is a process which is physiological, and consquently biological. The fact that the military authorities kept their soldiers for more than a year in training camps shows that those authorities have certain biological information not possessed by the biologists themselves. The fact that more than a year of strenuous training was consumed in getting a desired result shows that the development of an acquired character is a gradual process involving time. In the hospitals of France it was found that an American soldier of a year's training and a German soldier of the same length of service were about equal, but that German soldiers of four years of service were much tougher animals. This also shows the effect of time in acquired characters.

The process of physical training is a process of building up a store of energy within the system. This energy is the thing that does work. The man who has been exercising his muscles for years can do more physical labor in a given time than can a man who has been following a sedentary life. This energy is what fights disease, as is seen by the fact that if a man gets his energy supply exhausted by over-exertion he is more liable to be attacked by disease than when not so exhausted. Also, the process of fighting disease wears down a man's energy supply as does long continued over-exertion.

The energy which a person gets into his system by exercise is the thing which keeps him alive, and if you build up your energy supply by proper exercise you will live longer than if you fail to do that. One of my investigations into this matter consists in taking about 200 families of four or more children and combining them into a composite family of 1,105 persons. They were New England families, whose parents lived in Colonial days. These parents were mostly farmers, with carpenters and other tradesmen among them. While men of this kind do not have their powers built up by special training, they do have their muscles pretty well developed by hard work continued for many years. In such a process, the energy supply in the system is

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built up through the years and is manifest in the form of endurance. The following table shows that the later children of such parents live longer than the earlier ones:

EXPECTANCY OF LIFE AT AGE OF 25.

Ages of Fathers	Number of Persons	Average age at Death
Under 25	83	62.63 years
25 to 29	233	65.20 years
30 to 34	266	65.28 years
35 to 39	199	65.41 years
40 to 44	165	68.02 years
45 to 49	88	66.28 years
50 and over	71	70.27 years

A similar thing may be found in the trotting horse. There are a few cases of stallions of that breed living to be 30 or more years of age. When we examine the histories of those horses we find them to have been horses which were worked hard at the trot—many of them being race horses at a time in horse history when it was uncommon to send stallions to the race track. The later ones were practically all sons of horses which had been raced. Condensed, the record shows that horses trained and raced live longer than their brothers and sisters not trained and raced. And the offspring of horses trained and raced live longer than the offspring of their brothers and sisters not trained and raced.

The acquired characters coming from physical education not only add to the length of the lives of those who do the acquiring, but they add to the length of life of offspring.

About twenty years ago an industrious statistician made a list of all of the stallions of the trotting breed which were full brothers and were also sires of offspring capable of trotting fast enough to become standard performers. I took from his list all of those cases in which one brother had been trained and raced, and the other brother had not been raced, though a few of them had been trained. I put these into a new table to see if a horse was a better sire of trotters by reason of being trained and raced.

PERFORMERS SIRED BY FULL BROTHERS.

88 brothers with race records	2963 Performers
96 brothers without race records	963 Performers

This table shows that a horse is much more improved as a sire of fast trotters if he is trained and raced than if he is not so developed, but it does not tell the whole story. Of two horses, the one which goes into the breeding ranks at three or four years of age will get a more numerous progeny than the one which does not get there until eight or ten years of age. Yet the brothers which had the fewer progeny had more than three times as many which were good enough to become standard performers.

In 1825 a young hunter named Laverack bought a brace of setters, Ponto and Moll. After they had become old in service he bred them for the first time and got new animals to take the places of the old ones. After this second generation had become old in service he bred brother and sister together to maintain his supply of dogs for hunting purposes. He was not a breeder and bred his own dogs solely for the purpose of maintaining his supply of hunters. All of his breeding was in-breeding. The thing he did was to give each generation of animals an excessive amount of training before breeding them, and the character of training he gave them corresponded exactly to the kind of training given our soldiers before sending them to the firing line. After forty years of that system, Laverack had the best setters in the world.

Laverack's in-bred setters crossed on another strain of well-developed setters became the progenitors of the English setters in America. I traced the lines of descent from that combination for another forty years to the champion performers in the early years of this century. Those animals used by breeders for propagating this valuable stock did not become the progenitors of champions. Those champions were descended from branches used principally for hunting and only rarely for breeding. And the average age of the sires and dams in the pedigrees of these champions was about twice what it was in the average of the breed.

1542 *Monadnock Block.*

PSYCHOANALYSIS—A CRITICISM AND EVALUATION.

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In undertaking to consider a subject which is so well known, of so great renown, which has caused an almost unbelievable amount of interest among all classes of peoples, and finally which is so unique in itself, I think some consideration should be paid to its origin and at least a few comments be offered about the originator.

It seems fitting that such a unique system of Philosophy (if we may give it such a dignified name) should originate in the quaint old city of Vienna, along with other sinister ideas,

the latest of which is Steinach's rejuvenation operations. The real origin of Psychoanalysis depends not upon Sigmund Freud, but rather upon Breuer, also of Vienna. The thesis of Breuer was that the symptoms of hysterical patients depend upon impressive but forgotten scenes in the patient's life. It was, however, Freud who took this idea and developed it into what we are accustomed to look on as "Freudian Psychology." And in truth it may be called "Freudian Psychology," for there can be no doubt as to the fact that it was Freud who took the ideas of Breuer and developed them into real Psychology. What we know today as Freudian Psychology is purely Freudian Psychology. In Europe several branches have sprung from the real trunk, but in America it seems to have bred true to Freud.

Freud himself seems to be a very peculiar man. He states that during his practice in Vienna when he was forming his system of Philosophy (as some of his followers would call it), he refrained from coming in contact with the best thoughts of the day on his chosen subject in order that he might be the better fitted to interpret what he saw in an unbiased way. Secluded in his clinic in Vienna he worked out his system from his own observations, aided by the help of his imagination. In the year 1902 there crowded about Professor Freud in Vienna a goodly company of young doctors who wished to learn something of the new theory of Psychoanalysis which was already at that early date becoming famous. From that time on Psychoanalysis, or Freudian Psychology, began to spread. By 1907 it was felt that a conference ought to be called for the furtherance of the new science. This successful conference was followed by another in 1910 and still another in 1911. About this time Professor Freud felt that he was getting too old to continue to act successfully as the central figure and teacher as he had always done in the past, and hence he passed the reins of leadership over to his illustrious disciple, Dr. Jung. Now, with the spreading of the science and the active workings of his able disciples they too came to have some ideas about it. As I said before, Freud is a peculiar personage. Nowhere could this be better brought out than in his *history of the psychoanalytic movement.* In this he shows clearly that nothing can be Freudian Psychology except that which has been originated by Freud. Nowhere in his whole thesis does he acknowledge that any valuable contribution has been made to the science except by himself. In a few instances discoveries have been contemporaneous, but at no time does he acknowlege priority; and when priority has been established, he does not acknowledge the merits of the ideas offered. Such was the condition when the last Psychoanalytic Congress met at Munich in 1913. Jung presided over the meeting. Freud had for several years been slightly in the background. He had already several years ago broken off from Ferenczi, of the East Austrian School. Now he was going likewise to break off from the Zurick school. This meeting was to be historic. Freud did not approve of many of the things which were said and done, although they received the approval of the President of the meeting, Dr. Jung. But Freud was still looked upon as the father of the science. Hence when he raised a storm of objections, the congress dissolved and with it vanished the hope of ever establishing a united school of psychoanalysis. The Congress of Munich of 1913 was the last meeting of international importance of the Psychoanalysts. But this was not the end of psychoanalysis by any means. Today it is known and practiced in almost every civilized country. Brill's work in this country is widely read. Translations of Freud are accessible to the laity, not only in bookstores, but even in the most of our public libraries. Men like White and Jelliffe give their whole life to the subject. It is especially read by those people who are slightly abnormal or who have had to repress certain desires unduly. But let us now turn from this brief history of the Psychoanalytic movement and consider Psychoanalysis itself.

The fundamental principles of Freudian Psychology are two: (1) That nothing mental happens purely by chance; and (2) That the mental processes can all be explained by scientific laws involving *psychological terms only.* The first of these principles is merely an outcome of the second; for if mental processes can be explained by scientific laws involving psychological terms only, then it necessarily follows that nothing mental happens purely by chance. As to the first of these principles, men have for a long time been trying to correlate the physical and the psychical. But in the second we find something new and startling. Hence in this thesis we are pri-

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marily interested in the second of these principles.

In starting into this difficult subject it is necessary at least to make clear to ourselves a few terms. In the first place, we are to understand that personality may be defined as a collection of unified complexes (ideas, emotions, memories, desires, etc.) existing harmoniously together. A thought complex is a system of ideas or associations with an especially strong emotional tone. Suppose a man is a baseball fan. The interest which he attaches to baseball might be called his "baseball complex." When such a complex comes into conflict with another complex, then we have consciousness. But if the two complexes are wholly incompatible with one another, one of them must get into the background. This is done in a variety of ways: (1) By rationalization.—In most instances we build up a system of reasoning which may be logical or not logical, but which is sufficiently so to satisfy the mind of the individual, so that one of the conflicting complexes may be put out of consciousness and allowed to remain in peace in the subconscious. For instance, a man may know that he ought to attend to his business and not go to a baseball game, but he will go to the baseball game and rationalize the two conflicting complexes by saying that by going to the baseball game he will be made much better fitted for his work and hence can get as much accomplished as if he did not go at all, if not more. The more logical these rationalizations seem to the individual, the more peacefully will the repressed complexes reside in the unconsciousness. (2) By repression.—When, however, it is impossible for the individual to originate a sufficiently logical reason for choosing one or the other of the complexes, he will then deliberately *repress* one of them and hence sow the seeds for an emotional conflict. (3) By condensation.—This means that one symptom may represent one or more independent unconscious wishes. (4) By dissociation.—Every complex which is repressed has repressed along with it a certain amount of energy, i. e., the energy of interest which initiated the complex in the first place. This energy remains in the unconscious mind. It is, nevertheless, active and something has to become of it. There is a possibility for it to attach itself to something else and produce a neurosis. It is interesting to note here that a system of complexes may be repressed which are incompatible with the conscious self and yet which are compatible with each other and hence build up an unconscious self. This is at the basis of double personalities. In some unknown way, in certain peculiar people it is possible for an alternation to exist between the conscious and unconscious when the unconscious is made up of compatible complexes. (5) By psychic trauma.—This term is given to the thought complex, which, because of its great incompatibility, requires to be repressed in order to preserve the superficial unity and harmony of the mind. Suppose that a young man falls in love with a very beautiful girl. He proposes marriage to her and she accepts. He goes with the girl to her father to tell the good news, but unexpectedly finds that her father is so violently opposed to him that marriage is out of the question. Suppose, also, that at the time there was a very bright light in the room and that the victrola was playing. This instance would be a Psychic Trauma. (6) By displacement.—Hence the energy which was behind his desire for marriage with the young lady will be displaced into a disliking for the very things which might have been most prominent in his mind at the time of the psychic trauma. Hence he will always have a dislike for bright lights and can never bear to hear the victrola play again. (7) By symbols.—Such symptoms are said to be symbolic and tend to take on the kind of discomfort which happened by accident to be present at the time of the occurrence of the painful experience. The moment of the acquisition of the symbols is known as the "accidental moment."

Thus we see that though a complex may be repressed it does not necessarily cease to function for, by the use of symbols, it is possible for it to function in a variety of concealed ways and in the most peculiar manifestations through its use of symbols. For the energy or "libido" which is attached to it always seeks an outlet. Just how this outlet may manifest itself cannot be determined until its manifestation, and then its cause may be reached only by Psychoanalysis. It is interesting to note a few facts in connection with the "libido," or the energy which is supposed to be connected with any complex. To the ordinary reader of Freudian Psychology, the word "libido" connotes something sexual; but we are advised by the more recent American writers on the subject that "libido" "embraces as well all desires, in-

stincts, wishes, ambitions, aspirations, hungers, acquisitions, the social sense, love of art, etc." Hence we are led to believe that the word connotes every impulse in us which tends to produce movement or action. But before going further into the subject I should like to warn the reader that although the term is supposed to take in this almost unbelievable territory, yet at the same time in every case that I can bring to mind "libido" is invariably identified with the sexual.

Now, before going further with this paper it is necessary to consider again a little more in detail just the effects that repression of complexes has on the individual. When we have two opposing complexes, one of which must be chosen, an attempt is made by the mind to rationalize one of them in order to give full play to the other. If the rationalization of this complex is complete and satisfactory, it remains in the subconscious and does not tend to appear again in harmful manifestations. But if the rationalization of the complex is not complete, then the emotional tone continues to be active and produces psychoses. But these psychoses manifest themselves symbolically and under such a complete camouflage that it is impossible to trace back the manifestation to its true meaning. But Psychoanalysis attempts to do this very thing, and bases the curative powers upon the hypothesis that as soon as the dissenting complex has been brought to light, it may be rationalized and peacefully tucked away into the subconsciousness.

The first workers in Psychoanalysis, especially Breuer, attempted to do this by means of hypnosis. But Freud came to the conclusion that when a person became hypnotized he was under the influence of the hypnotist and was not giving anything like a true manifestation of his subconscious self. Freud claims that there is a kind of "censor" in the mind that prevents the subconscious content, and especially the incompatible subconscious content, from manifesting itself. Hence the object of Psychoanalysis is to catch the "censor" off its guard and reveal the innermost secrets which are troubling the patient. At the present time dreams and association tests are made use of in most cases. Of these two, dreams are by far the more important. While a person is dreaming, the censor is apparently off its guard. Hence out of the subconscious mind the more important things push up into the consciousness of the dreamer. But these things represent those which are affecting the dreamer in his waking consciousness. They are the things, but they are expressed symbolically. The mind is attempting to fulfil the yearnings and wishes that are impossible of fulfillment in the waking life because of the incompatibility with the social or ideal consciousness. In dreams the patient may satisfy his desires to the fullest extent and not be molested in the least way by any of the incumbrances which life puts upon him.

Let me give you a few examples of Psychoanalysis. Dr. A. A. Brill relates the following dream: "A woman was at a menagerie with a little niece. The animals all came out of their cages. She was greatly frightened. She saw a stairway, which she went up with great trouble. All the doors at the top were locked." This is the analysis. The patient suffered from hysteria and had a terrible disgust for sex. The niece typified purity, innocence, maidenhood. The wild animals signified the animal passions that were pursuing her. The great effort of reaching the top of the stairs signified the acceptance of normal sex without running away from it. "The several closed doors which she could not open signify the many opportunities to marry which she had let slip." I happened recently to be reading an article by Dr. Charles W. Burr in which he made comment on this very dream: "This was published by a physician in the twentieth century and in America, not in the ages of witchcraft, nor in the heart of Africa." I should not like to be so hard on the advocates of Psychoanalysis as that, but I do agree with Dr. Burr in his belief that the interpretation of the dream certainly needs criticism. The first thing that I should like to call to the attention of the reader is the fact that the idea of sex entirely dominates the interpretation of the dream. This is characteristic in one sense or the other of the interpretation of all dreams by Psychoanalysts. No matter how peculiar the dream may be, it will always be found that the analyst has devised some way of considering it as a manifestation of repressed sexual desires. In the second place, I can see no good reason in the world for interpreting the dream in this manner. In my opinion, the dream might have had a much easier method of approach than the highly artificial one which Brill has attributed to it. It seems to me much more logical that the young woman might

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have had a natural fear of wild animals. This fear might have been accentuated by some little incident that happened a day or so before; or even she might have been closely associated with animals a few days before and hence have obtained a fear for them. The fact that the animals set upon her and she tried to escape but found her way blocked would symbolize her conscious fears that she would some day come to harm by an animal. Even this is not the only interpretation of the dream possible. Certainly a dream with this one's possibilities should have at least five or six other interpretations which would be as good as those given by Dr. Brill and myself.

Illustration after illustration could be cited from the work of the same and other eminent Psychoanalysts, but this seems unnecessary. I am not prepared here to go into the refutation of the value of Psychoanalysis. It may be that it is a method of getting beneath the "censor" of the mind. But I believe that with the complex system of symbols that Freud himself says the dreamers' mind uses, it is almost impossible to get into the real meaning of the dreams. And again I cannot quite see into another situation. It is admitted by the Psychoanalysts themselves that people have gone to them, made up dreams, and told the dreams to the doctor as if they were real dreams. But we are not going to get around the Psychoanalyst so easily. He claims that the imagined dream is just as good for his purpose as a real dream. For that matter the expressions of authors in the forms of novels or any kind of writings are just as good material for the Psychoanalysts as true dreams themselves. Probably they are, for the analyst is going to interpret them in a sexual way just the same. I can see no reason in the world for interpreting *all* dreams as the result of sex. Dreams are probably the symbolic expression of repressed desires; and the complexes which are going to come into the consciousness in the form of dreams are probably the ones that have the most reserve energy attached to them, or rather the most important ones or the ones which are most out of harmony with the waking self. Even upon this basis, which Freud himself seems to indorse, I see no logical reason for such uniform interpretation. There can be no doubt in the mind of anyone that sex is one of the most important things in a person's life and that it is very often perverted, and that when it is perverted there is a powerful complex repressed or perverted which is likely to cause trouble. But if any one of us will look back into his own life and those of intimate friends whom he feels that he surely knows, he must find that many people have other impulses repressed which are just as powerful and important in the life of the individual as the sexual impulse.

I rather hesitate to comment upon the value of interpreting the dreams, association tests, etc., of the patient. I do not believe that it is possible for anyone to be able to interpret any single dream. Freud himself did not believe this, although one might be led to believe so from a hasty scanning of his writings. In the first place, he says that the doctor must know the patient for several weeks before he is able to do anything for him. After this it takes from six months to several years before he can begin to expect results. Hence the patient must have the attention of the doctor over a long period of time. He is brought under the influence of the suggestions of the doctor, made to become familiar with Freudian Psychology; hence, if there is anything of a pronounced nature in the patient (and there always is), it is sure to be brought out. The patient is not allowed to remain out of the influence of such an overly emphasized life. But even at that the sexual is so weak as to make its expression obscure. You have seen a few of the examples which Psychoanalysis offers us to show positively how dreams may be so uniformly interpreted.

This very fact tends to show the difficulty of interpreting the highly symbolized dreams, even if the theory of Freud is correct. The interpretation must be based upon the intuition of the doctor. The dream must be fitted to what the physician believes it to symbolize. If the physician takes the case in good faith, I cannot conceive of anyone having the intuition to interpret, I mean accurately interpret, dreams which have so many avenues of approach as all dreams have. If they are to be interpreted as the mere expression of repressed desires of many kinds, of which sexual desires represent but a small part, then I do not believe that it is possible for any physician, however skilled, to interpret accurately the dream of the patient.

There can be no doubt as to the pragmatic value that Psychoanalysis often has. The patients in whom we are most especially interested are those who are on the border line of

insanity. In cases which have progressed far into the disease, Psychoanalysis is of no use. Further, it is of no use among patients who are bordering on idiocy. But for border line cases with a fair amount of intelligence it often has a profound value. At the same time this does not at all prove the correctness of the Freudian theory. It merely shows that the methods of treatment often have a good effect on the patients; the real reason for their functioning is another question. It seems to me that in most of these cases the doctor serves as a means of bettering the environment of the patient. I should like to take issue with Freud and his theory that insanity may be explained by means of psychological terms; that is, if I interpret the term correctly. Probably it is a fact that insanity in itself may be explained in terms of psychology. But this does not explain the basis or the *real* cause of insanity. The real cause of insanity is the faulty development of the central nervous system or some injury to it after its development. If the nervous system or brain were what it should be, then the things which Freud points out as the causes for insanity would have no effect on the individual at all. Is it not a fact that many sane and perfectly normal persons undergo a great deal more than most of the insane do? On the other hand, if the insane had lived under perfect conditions, probably they would still be normal. But that is begging the question of insanity. However, there are certain border line cases which might have remained normal if their environment had remained normal. But when their environment became badly deranged, their inherited abilities were not sufficent to overcome their abnormal environment; hence they pass over into the category of the insane. These are the persons with whom the Psychoanalyst has his success. From the very outset he gains the confidence of the patient. Hence he acts as a sort of advisor for him and takes the place of what the patient lacks in the form of "brains" and probably of environment. After the doctor has worked with the patient for a long enough time he may accomplish for the patient what the patient ought already to have accomplished for himself. But I do not believe that this can be done by the interpretation of a single dream. The doctor must come to understand thoroughly the mental life of his patient, his worries, troubles, aspirations, weaknesses, and the like, through many consultations and in divers ways besides the interpretation of dreams. After he has come to see what is back of the patient's worries, he uses his own brain for that of the patient and rationalizes the repressed desires so that they may rest in peace in the subconscious mind and not give rise to further neuroses.

We conclude, then, that Psychoanalysis may have some pragmatic value, but this is not to admit the truth of all its theoretical implications. Many of these have not been and, in the very nature of the case, can never be verified so as to become a part of scientific psychology.

Correspondence

New Type of Influenza.

Warrenton, Va.,
August 15, 1924.

To The Editor:

We seem to have a new or a queer expression of an old disease—perhaps influenza—in this section.

So far it is confined to children from eight years of age down to infants past ten months. Without an initial warning, it begins with vomiting every few minutes, bowels become constipated and stubborn to treatment; and when they do move by oral and rectal persuasion, the actions are pasty and chalky in color. It requires from three to five days' effort to get them back to normal consistency, color and comfort. Patients become prostrated, pulse weakens with muscular tenderness and constant perspiration and loss of desire for food. This condition lasts for from three to five or six days. About the time the symptoms yield, a number of very small fiery red specks appear on the upper arms, over shoulders and back, with itching and burning. Tongues become white coated. There have been no adult cases. The condition appeared in several families about the same time, no family having been in contact with the others.

I told the parents that I did not know what it was but, from the symptoms, especially the subnormal temperatures, tendency to sweating, muscular weakness and skin tenderness, it must be influenza.

Since these patients have recovered, Dr. R. E. Wine, of Nokesville, was called to assist me in an obstetrical case, and he mentioned having the same kind of puzzling experience

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with children in his practice. He says he called it "influenza" for want of a better name. His cases happened in the week that mine did but twelve miles distant from mine, with no communication.

I write this for your consideration and to post you should you hear from a like experience of physicians in other sections.

STEPHEN HARNSBERGER, M. D.

Miscellaneous

THE COMING MEETING OF THE MEDICAL SOCIETY OF VIRGINIA.

Attractions Offered by Staunton to the Visitors.

By CHARLES MINOR BLACKFORD, M. D., Staunton, Va.

Staunton offers many and varied attractions to the visitors who may attend the coming meeting of the Medical Society of Virginia, especially to those who come from the tidewater and lowland portions of the State. Situated in the middle of the Shenandoah Valley, many points of interest are to be found in its vicinity, and smooth, macadam roads leading out in all directions enable automobile passengers to reach these points with but little expenditure of time or labor.

In the years following the Civil War, steps were taken to re-open the schools for which Staunton had been noted throughout the South, and to open new ones. Many of the ladies of the Old South had attended one of these Staunton schools, and many of the mothers and wives of today look back to Staunton for the bright memories which only schooldays give. In 1831 a widow, Mrs. Maria Sheffey, assisted by her daughters, opened a boarding school for girls in her residence, and in January, 1844, "a meeting of the friends of Mrs. Sheffey's school" was held and a board of thirteen trustees was appointed to take charge of the establishment. These trustees changed the name of the school to "The Virginia Female Institute," and elected Mrs. Sheffey and the Reverend James McElroy as Principals of the school, which was continued in operation until the present building was finished. The cornerstone was laid on June 1, 1846, with much ceremony.

In 1880, Mrs. J. E. B. Stuart, widow of the famous Confederate cavalry commander, was made Principal, and for nineteen year she was at the head of the school. On her retirement her place was taken by Miss Maria Pendleton Duval and, while Miss Duval was in charge, the State Corporation Commission authorized the trustees to change the name to "Stuart Hall," as a memorial to Mrs. Stuart. The school now has Mrs. H. N. Hills as Principal, and is under the control of a Board of Visitors, the President of which is the Right Reverend Robert C. Jett, D. D., Bishop of Southwestern Virginia.

Another famous girls' schools in Staunton is the Mary Baldwin Seminary. This institution was founded in 1842 under the name of the Augusta Female Seminary, and it grew in size and importance until the beginning of the Civil War. Misses Mary Julia Baldwin and Agnes McClung devoted their lives to the upbuilding of the school, and the present name is a memorial to Miss Baldwin. For a number of years the Mary Baldwin Seminary was content to give the usual courses of instruction offered by all high class girls' schools, but in 1923 the trustees yielded to the increasing demand for the higher education of women, and the Mary Baldwin College was chartered. Grounds were purchased on the outskirts of Staunton, and, as soon as may be practicable, the college buildings will be erected. For the present, however, the college will be housed in the Seminary buildings.

Students from twenty-eight States and two foreign countries are in attendance on the Seminary; in all, 351 pupils. Miss Marianna P. Higgins is the Principal, and both she and Mrs. Hills, of Stuart Hall, extend a cordial invitation to the members of the Society and those with them to visit the schools.

In Staunton, or in its neighborhood, stand three military schools which are well and widely known. These are the Staunton Military Academy, better known locally as "Kable's School;" the Augusta Military Academy, locally called "Roller's School," and the Fishburne Military School in Waynesboro. The Staunton Military Academy was founded by Captain William H. Kable, a Master of Arts of the University of Virginia, who opened the school shortly after his return from service in the Confederate Army. On his retirement, his son, Colonel Wm. G. Kable, replaced him as President, but on his death in 1920, the present President, Colonel Thomas Halbert Russell, took the post.

The school has high standing. For a number of years it has been one of the ten "Honor

Schools" of the War Department, and on nomination by the President of the Academy, such of its graduates as have secured appointments are admitted to West Point and Annapolis without examination other than physical. As an "Honor School," the Academy has the privilege of awarding two scholarships to West Point, but as the course there is four years in duration, it is obvious that one of these scholarships cannot be awarded each year.

The Augusta Military Academy is located near Fort Defiance, some nine miles from Staunton on the Lee Highway. It was founded in 1865 by Colonel Charles S. Roller after his return from the Confederate service, and is now under the charge of his two sons, Colonel T. J. Roller and Major Chas. S. Roller. The school has prospered and during the last session nearly 300 boys were cadets in its corps. The ride from Staunton is a beautiful one. The road passes through the midst of the Valley, and on each side a magnificent sweep of the Blue Ridge and the Alleghanies may be had. The evening dress parade and retreat is a most attractive sight, and the Principals most cordially invite the visitors to witness it and inspect the school.

In 1879 Professor James A. Fishburne, of Waynesboro, became convinced of the need of a school which would furnish a liberal education for the youth of his native town and its vicinity. He founded the Fishburne Military School, which at first was merely a day school, but its reputation spread and so many applications for admission came from a distance that a boarding department had to be established for their accomodation. At the present time there are about one hundred and fifty boarders besides those from the vicinity. Professor Fishburne has long passed to his reward and the Principal is now Colonel Morgan H. Hudgins, under whose management the school has become a prominent factor in the scholastic and athletic life of the State. All visitors from other sections of the State should visit the beautiful little city of Waynesboro, nestled on the shores of the south fork of the Shenandoah River at the foot of the Blue Ridge, and inspect the Fishburne Military School.

Although lacking the picturesque attractions offered by the military schools with their glittering uniforms and martial music, the Dunsmore Business College is well worthy of a visit by those who are interested in the details of modern business life. Fifty-one years ago J. G. Dunsmore, a young man, freshly graduated from the Eastman Business College at Poughkeepsie, N. Y., opened a business school in Sink's Grove, a tiny hamlet in Monroe County, West Virginia. After struggling with financial embarrassment from small attendance and the ridicule of many who thought that to teach business in a school was mere folly, he concluded that Sink's Grove was an unsuitable site, and in the Spring of 1880, he moved his school to Staunton. Each of the forty-three years which have passed since the move was made has shown steady improvement, and at last success has crowned the effort. Messrs. Morris M. Edgar and John R. Eye are the President and Vice-President respectively, and during the last session there were 152 students in attendance.

Staunton is a center for tours of the greatest charm. Only a few miles away is the famous Weyer's Cave, at Grottoes. Before the Civil War this cave was widely known throughout the United States, and the automobile has done much to revive its vogue. The beauties of this wonderland have been described by many who are better qualified to perform the task than is the writer, and a visit to it offers a delightful excursion over an excellent road to those who attend the meeting of the Medical Society. The caverns of Luray, the Endless Caverns and the Grottoes of the Shenandoah, can each be reached in a half day, and each will be a treat to anyone who has never seen them.

One of the most beautiful rides in the eastern portion of the United States is that from Staunton to Monterey, the countyseat of Highland County. Passing through Churchville, the Deerfield Valley along the Calfpasture River is reached by going through Jennings' Gap, a beautiful pass through the North Mountain range. The road rises to the summit of Shenandoah Mountain, from which a wonderful view of forest-clad mountains is had, and the whole journey is replete with mountain scenery which in the early autumn is almost beyond description. Highland County is fully as lovely as is the much praised azure country of North Carolina, and Virginia medical men owe it to themselves and their patients to see this marvellously beautiful portion of their own State.

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THE ROAD TO MONTEREY.

By CHARLES MINOR BLACKFORD, M. D.

If you want to make a journey that will satisfy your soul;
That will rest your mind and body and will make you sound and whole;
Simply hie you out to Highland; take the wife and take the boy,
For a run across the mountains that will fill your heart with joy,
Oh, that road to Monterey,
On a calm, soft summer day,
There is nothing that can equal that old road to Monterey!
Oh, the road to Monterey,
Where the lights and shadows play,
As you ride across the mountains on the road to Monterey!

Churchville passed, to West Augusta you will go through Jennings' Gap,
'Round the foot of old North Mountain, far below its lofty cap;
Then comes Shenandoah Mountain, and you climb its wooded side
To the summit where a view is seen that spreads out far and wide.
From the road to Monterey,
On a calm, soft summer day,
You think you see the Promised Land there spreading far away!
Oh, the road to Monterey,
Where the lights and shadows play,
As you ride across the mountains on the road to Monterey!

The mighty Alleghanies in their stately beauty stand
All around you, and their massive peaks are rising close at hand.
Then Headwaters, where the rivers rise that flow both north and south,
To the James and the Potomac, meeting at the Chesapeake's mouth.
From the road to Monterey,
Flowing downward to the Bay,
You see those rivers rising from the road to Monterey.
Oh, the road to Monterey,
Where the lights and shadows play,
As you ride across the mountains on the road to Monterey!

Then McDowell, where the battle was, the fight up in the sky,
Brings thoughts of Stonewall Jackson and a name that ne'er will die.
You ride through many a mountain glade until at last you say,
Your journey's end is reached at last:—you come to Monterey!
Oh, that road to Monterey,
On a calm, soft summer day,
There is nothing that can equal that old road to Monterey!
On that road to Monterey,
All your troubles fade away,
As you ride across the mountains on the road to Monterey!

Analyses, Selections, Etc.

Abrams Treatment Again Discredited.

We are indebted to one of our readers for the following selection from *The New York Times*, which again discredits the Abrams Treatment and deplores the credulity of a public ever ready to grasp at anything out of the ordinary.

A Culminating Test of Credulity.

"According to credible report, the late Dr. Abrams of electronic fame left a fortune of several millions, possibly five. Well he might! Of all this country's many medical quacks and charlatans he showed the most cynical confidence in the amount of credulity, of gullibility, characterizing a considerable fraction of its inhabitants, and for the exploitation of that faction he devised a scheme of magnificent absurdity.

"His statements as to the diagnostic and curative powers of his system and his machines were a wild sequence of perfectly obvious impossibilities. Ordinary intelligence out of medical circles, and ordinary honesty in those circles, rejected his claims on first hearing. Yet his dupes were numerous all over the country, and there were not a few men with medical diplomas who lent themselves to the working of the great swindle, merely because there was money in it. Possibly Dr. Abrams was self-deceived as well as a deceiver, but this charity breaks when stretched to cover his professional disciples in 'electronism.'

"The Scientific American has just made, or had made, a really expert investigation of the Abrams methods and apparatus. The report—it is not the first of like kind by any means—is the inevitable one that there is absolutely no basis for any of the claims made in behalf of the electronic system of diagnosis and treatment. It is humbug and fake—all of it.

"Of course, like all quacks, the Abramsites have their 'testimonials' of marvelous or miraculous healings after the regular doctors have failed. Some of these documents are forgeries, some of them record temporary improvement and the rest only show what can be done by the power of suggestion in chance selected cases. Suggestions can be made by an Abrams vibrator just as well as by a Coue formula.

Every charlatan has his triumphs; it is to be regretted that his victims cannot be buried in a special graveyard, where they could be counted."—(*New York Times*, August 20, 1924).

Report of Scientific American Abrams Investigation Committee.

The revolutionary Abrams technique for the diagnosis and treatment of disease which has swept the country is utterly without foundation in science.

Such is the verdict of the *Scientific American* Abrams Investigation Committee which for nearly a year has subjected the so-called electronic reactions of Abrams to a searching analysis. The practitioners of the Abrams method have declared it holds out new hope for suffering humanity. Its enemies have dubbed it the greatest piece of charlatanism in history. The movement has spread to all parts of the world and threatened to upset the entire theory of the medical profession.

There have been forty-four different variations of the Abrams apparatus in this country alone. The Abrams method has had 3,500 practitioners; the other methods have each had a thousand more. The number of patients of all them has run into hundreds of thousands.

"The so-called electronic reactions of Abrams do not exist—at least objectively," declares the committee. "They are merely products of the Abrams practitioners' minds. These so-called reactions are without diagnostic value. And the Abrams oscilloclast, intended to restore the proper electronic conditions in the diseased or ailing body, is barren of real therapeutic value. The entire Abrams electronic technique is not worthy of serious attention in any of its numerous variations. At best, it is all an illusion. At worst, it is a colossal fraud.

"This electronic development has caused a sad state of affairs in this world of ours. It has given rise to all sorts of occultism in medicine. It has been a renaissance of the black magic of medieval times. It has given free reign to idiotic ideas—ideas which would formerly have been laughed out of existence at their very start. Suffering humanity has been made so many lavish promises of late that it is a sad disillusion now to go back to our conservative orthodox medicine, which, after all, remains our mainstay.

"When the day arrives for the practical application of such serious research work, we may be certain that it will have nothing in common with the passing electronic craze. In so far as concerns the apparatus employed, the methods of exploitation, or the qualifications of the men engaged in the work, it will be wholly without resemblance to the cults whose basic ideas and whose technique this Committee denounces."

Dr. Abrams died suddenly of pneumonia on January 13, in the midst of the "*Scientific American*" investigation. His death came on the eve of his scheduled appearance as the star witness in the trial of Dr. Mary Lecoque, an E. R. A. practitioner, at Jonesboro, Ark., charged with using the mails to defraud.—(*Scientific American*).

Jack-Knife Position After Hernia Operations.

The posture of the patient after an operation for hernia is usually neglected. If surgeons realized that they could reduce their recurrences materially, besides adding to the comfort of their patients, the jack-knife position would become a matter of routine for inguinal, femoral, umbilical and ventral hernias which presented difficulties in closing the fascial layers.

In inguinal hernia operations the best exposure is obtained by keeping the thigh extended until the deep sutures are ready to be tied, when it should be elevated, adducted and rotated inward. This reduces the distance between Poupart's ligament, the internal oblique and conjoined tendon from twenty-five to fifty per cent, depending on the size of the opening, the variety of hernia, and the development of the muscles. After the patient is returned to bed his knees and shoulders should be elevated twenty-five to forty-five degrees by means of pillows and a back rest. This position takes the strain off of the stitches during the process of repair, permits a broad firm union of fascial flaps, and reduces the percentage of recurrences. The jack-knife posture should be maintained as long as the patient stays in bed.—(Leigh F. Watson, *Annals of Surgery*, August, 1924, lxxx, pp. 239-241).

Paraffinoma of the Vas Deferens.

Leigh F. Watson reports an unusual complication following the paraffin injection of an inguinal hernia by a charlatan. The hernia

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promptly recurred and the cord and testicle on the side treated became swollen, painful and tender on pressure. At operation paraffin masses were removed from the internal oblique muscle, the conjoined tendon, and the vas deferens. The vas was occluded and it was necessary to resect it and anastomose the ends.

Because of the high percentage of recurrence following operations for "paraffin hernia," the regular Bassini operation was combined with the author's method of *lateral displacement of the cord*. With the cord displaced on to the internal oblique, one-half inch to the inner side of the deep suture line, the overlapped fascial flaps were securely stitched to the deep suture line to re-enforce the weak spots, the usual points of recurrence—the internal ring, the lower end of the incision over the pubic bone, and the line of deep sutures.

The serious accidents that sometimes follow paraffin injections of hernia are: Gangrene of the skin; injection of cord structures; wounding of intestine, appendix, or bladder with the needle; injection into blood vessels, followed by pulmonary or cerebral embolism or sudden blindness from plugging of the artery of the retina, and occlusion of the iliac or femoral artery, with gangrene of the extremity necessitating amputation. (*Jour. Amer. Med. Assn.* 1924, lxxxii, June 14, pp. 1935-1936).

Proceedings of Societies

Floyd County Medical Society Re-Organizes

On July 26th, a number of the doctors of Floyd County, Va. held a meeting and decided to re-organize that Society. Dr. J. M. Harman, Floyd, was elected president; Dr. S. T. Yeatts, Floyd, vice-president; Dr. R. T. Akers, Alum Ridge, secretary-treasurer. The first regular meeting was scheduled for August 30th, at which time a delegate was to be elected to represent the Society at the Staunton meeting of the Medical Society of Virginia.

Hanover County Medical Society Organized.

On Monday, August the 18th, the physicians of Hanover County met at Ashland, Va., and formed the Hanover County Medical Society. Officers elected were Dr. T. J. Stanley, of Montpelier, president; Dr. A. C. Ray, of Ashland, vice-president; and Dr. J. A. Wright, Doswell, secretary-treasurer. This society proposes to meet every other month, on the second Tuesday, at 7 P. M., at Ashland. The next meeting will be held on September the 9th, at which time Dr. I. K. Redd, of Atlee, will present a paper.

The Nelson County Medical Society

Held its annual meeting on July 28, and elected the following officers for the ensuing year: President, Dr. F. M. Horsley, Lovingston; secretary-treasurer, Dr. J. F. Thaxton (re-elected), Tye River; delegate to Staunton meeting of the Medical Society of Virginia, Dr. E. C. Kidd, Lovingston; alternate to the delegate, Dr. J. C. Everett, Nellys Ford.

The Loudoun County Medical Society,

At a regular meeting held August 5th, elected the following officers for the coming year: President, Dr. A. B. Householder, Lovettsville; vice-president, Dr. C. P. Hutchison, Purcellville; secretary-treasurer, Dr. W. C. Orr, Leesburg.

The Warren, Rappahannock and Page Medical Society

Held it regular meeting at Flint Hill, Va., August 12th, Dr. D. M. Kipps, of Front Royal, presiding. Dr. Virgil Hammer, of Luray, is vice-president and Dr. E. L. Grubbs, of Front Royal, secretary-treasurer of this society. Several interesting papers were presented by the members, the subject for general discussion being Chronic Tuberculosis of the Lungs.

The Truth About Medicine

In addition to the articles enumerated in our letter of June 28th, the following have been accepted:

Manhattan Eye Salve Company,
Butyn Ointment—M. E. S. Co.
Holocaine Ointment—M. E. S. Co.

NEW AND NON-OFFICIAL REMEDIES.

Benzyl fumarate—Abbott. Benzylis fumaras.—It contains not less than 99 per cent. of benzyl fumarate. Benzyl fumarate acts like benzyl benzoate and benzyl succinate in lowering the tone of unstriped muscle. Like benzyl succinate, it has the advantage over benzyl benzoate in that, because of its insolubility in water, it is practically tasteless and does

not produce gastric disturbance. It is employed in the same conditions as benzyl benzoate and benzyl succinate. (See New and Non-official Remedies, 1924, pp. 69 and 71). The Abbott Laboratories, Chicago.

Sulpharsphenamine—Metz.—A brand of sulpharsphenamine—N. N. R. For a discussion of the actions, uses and dosage of sulpharsphenamine, see New and Non-official Remedies, 1924, p. 56. Sulpharsphenamine—Metz, is supplied in ampules containing, respectively, 0.05, 0.075, 0.1, 0.15, 0.3, 0.45 and 0.6 Gm. The H. A. Metz Laboratories, New York. (Jour. A. M. A., July 5, 1924, p. 41).

Mead's Cod Liver Oil.—It has a vitamin potency so that one-fourth of one per cent. cures experimental rickets in rats in five days when added to the diet. For a discussion of the actions and uses of cod liver oil, see Useful Drugs, 6th edition. Mead Johnson and Co., Evansville, Ind. (Jour. A. M. A., July 12, 1924, p. 121).

Oleo-Bi (Roche).—A suspension of finely divided bismuth oleate in olive oil, containing bismuth oleate equivalent to 0.05 Gm. of bismuth (Bi) in each c.c. Oleo-Bi (Roche) is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis. (See Bismuth Compounds, New and Non-official Remedies, 1924, p. 74). Two c.c. are administered intramuscularly, preferably into the gluteal muscle, two or three times a week. Oleo-Bi (Roche) is marketed in the form of 2 c.c. ampules. The Hoffmann-LaRoche Chemical Works, New York. (Jour. A. M. A., July 19, 1924, p. 195).

Butyn Ointment—M. E. S. Co.—Composed of butyn (see New and Non-official Remedies, 1924, p. 32), 1 per cent., water 1 per cent., wool fat and petrolatum 98 per cent. The ointment is put up in collapsible tubes for application to the eye. Manhattan Eye Salve Co., Louisville, Ky. (Jour. A. M. A., July 26, 1924, p. 271).

PROPAGANDA FOR REFORM.

The Commercial Taint in Medical Advertising.—The advertisements of firms that sell apparatus, especially for physiotherapeutics and diagnostic uses, show a tendency to stress the idea that the purchaser of such apparatus will increase his income by impressing the layman with the scientific attainments of the individual who uses it. No decent man in the medical profession thinks of adding to his armamentarium for the purpose of financial gain. An advertiser's appeal to buy a piece of apparatus because of the "psychic effect" which it may produce on the patient is repugnant and insulting. Any firm that thinks it is going to obtain the good will of the medical profession by an appeal to the sordid is sadly mistaken.—(Jour. A. M. A., July 5, 1924, p. 44).

Prophylactic Inoculation of Dogs Against Rabies.—The evidence for the efficiency of prophylactic immunization in persons bitten by rabid animals has long been too convincing to permit of doubt. In Japan experiments to reduce the frequency of rabies by inoculation of the dog population show that its frequency with dogs has been greatly reduced. (Jour. A. M. A., July 5, 1924, p. 44).

Purifico, A Cancer Cure Fraud.—In 1917 the persons doing business as the Purifico Company pleaded guilty to the charge of the federal authorities that the claim that Purifico was an effective remedy for cancer and other conditions was false and fraudulent. Now a fraud order has been issued against the Purifico Company, denying the firm the use of the mails. Analysis showed "Purifico No. 1" to be a watery, alcoholic, sugar mixture of cinchona, plant extractives, a vegetable laxative and potassium iodid. "Purifico No. 2" was a watery, alcoholic mixture of cinchona, plant extractives and potassium iodid. "Purifico No. 3" was a watery, alcoholic, sugar mixture of plant extractives, including valerian. (Jour. A. M. A., July 5, 1924, p. 56).

"Sero" Endocrine Preparations.—A circular "For Endocrine Therapy" bears the name of R. A. White, Los Angeles, and Cal. Endocrine Foundation Laboratories, Long Beach. It advertises "Asthma Sero," "Antitoxoid in Tuberculosis," "Rheumatism Sero," "Nephro Sero," "Pneumonia Sero," "Abscess Sero," "Tabes Sero" and "Malnutrition Sero." In connection with each product appear words, which if read hurriedly, might be taken by some as a statement of composition. For instance "Antitoxoid in Tuberculosis" is said to contain "Orco-plasm, Thyroid Extract and Phosporo Iodide." "Rheumatism Sero" is said to contain "Orco-plasm and Thymus Iodide." The circular contains the vague statement that orcoplasms are compounds that "represent unchanged protoplasm and serologic organic and inorganic substance." It contains also the unenlightening statement that "the Inorganic Substance in the Seros are in form Physiological Solutions." The circular wisely makes no attempt to define "phosporo-iodide" and "thymus iodide." (Jour. A. M. A., July 5, 1924, p. 58).

Cellasin.—Cellasin is sold by the Cellasin Company, Buffalo. Cellasin, then marketed by another firm, was reported on by the Council on Pharmacy and Chemistry about fifteen years ago. It was submitted to the Council with the claim that it was a ferment absorbed unchanged into the tissues, that it cured diabetes mellitus and that it cured tuberculosis and established immunity against this disease. The Council's report at that time brought out that the claims were unwarranted and that it contained, not a ferment, but a spore-producing bacterium which splits sucrose largely into lactic acid. (Jour. A. M. A., July 5, 1924, p. 58).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Smith's Buchu Lithia Pills (C. F. Smith), containing powdered licorice, extracts of plant drugs including uva ursi and podophyllum, sodium, potassium, lithium and magnesium compounds, including nitrate and citrate, and soap. Famous Mineral Well Water (Famous Mineral Wells Water Co.), adulterated water, consisting in whole or in part of filthy and decomposed animal or vegetable substances. Foley's Kidney Pills (Foley and Co.), containing potassium nitrate, methylene blue, hexamethylenamin tetramin and plant material including resin and juniper oil.

Irongland Tonic Tablets (Sanitary Products Co.), containing an iron compound and material of animal origin. Remlock 300 (Remlock Hills Laboratory), consisting of 99 per cent. water and 1 per cent. calcium hypochlorite, calcium chlorid and calcium carbonate. Trask's Ointment (D. Ransom, Son and Co.), consisting of extracts of plants, including tobacco and lobelia, mixed with fat. Tubbs White Pine Cough Cure (The Tubbs Medicine Co.), consisting essentially of pine tar, extract of a bark, chloroform, sugar, alcohol and water. (Jour. A. M. A., July 12, 1924, p. 138).

Nicomors.—The Council on Pharmacy and Chemistry took up the consideration of Nicomors, stated to be a medical preparation for the alleviation of the

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physiologic effects of nicotin at the request of the Nicomors Products Company. Nicomors comes in the form of tablets which are claimed to contain magnesium peroxid and tannic acid as their essential constituents. It is claimed that with the use of Nicomors the effects of tobacco smoking show very little or not at all. It is even claimed that the preparation has a favorable effect on the stomach and the intestines. The Council reports that the claim that the random use of a mixture of magnesium peroxid and tannic acid has a favorable effect on the stomach and intestines, is without warrant, and that the claim that the ill effects of tobacco smoking can be overcome by the use of Nicomors is not credible and not supported by any acceptable evidence. (Jour. A. M. A., July 19, 1924, p. 212).

An Anesthetic Monopoly.—U. S. patent 1,491,740, was issued April 22, 1924, and was assigned by the patentee to the S. S. White Dental Manufacturing Co. The specifications of the patent describe a process for making a nearly anhydrous nitrous oxid. The patentee claims patent rights, not only on his process for reducing the moisture-content and in nitrous oxid manufactured by that process, but on all nitrous oxid whatsoever conforming to the arbitrary standards stated in his claims, no matter how manufactured. The process, if novel, is presumably worthy of patent protection. But nitrous oxid has been recognized as a chemical entity since 1776, and it has long been possible to reduce by various processes the moisture-content incident to its manufacture. By what process of reasoning the patentee claims to have "invented" nitrous oxid of low moisture-content and how the patent office came to concede his claim, are beyond the comprehension of persons not versed in the mysteries of patent logic and patent law. It would not be to the public interest for any concern to obtain a monopoly on nitrous oxid free from moisture. It is to be hoped that the S. S. White Dental Manufacturing Company will not be able to secure a monopoly on dry nitrous oxid. (Jour. A. M. A., July 26, 1924, p. 287).

Book Announcements

The Principles and Practice of Obstetrics. By JOSEPH B. DE LEE, A. M., M. D., Professor of Obstetrics at Northwestern University Medical School; Obstetrician to Chicago Lying-In Hospital and Dispensary, etc. Fourth Edition, thoroughly revised. Large octavo of 1123 pages, with 1128 illustrations on 923 figures, 201 of them in colors. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $12.00 net.

Here is in truth a super-text-book. Unfortunately large from a utilitarian standpoint, it surely contains evrything worthwhile pertaining to the Principles and Practice of Obstetrics. It is well written and beautifully illustrated, but above everything else, it is strongly conservative. The author says: "Something must be done to stem the tide of obstetric operating now prevalent with resultant maternal and fetal mortality." The indications for Cesarean section, forceps, pituitrin, etc., have been closely drawn. In this "hurry-up" age much mischief has been wrought by those who are unwilling to wait for the orderly procedure of Nature.

In discussing the low, cervical Cesarean section (laparotrachelotomy), the author says: "I hope the general as well as the obstetric surgeon will adopt this procedure, since I am convinced that if it should become established practice when abdominal delivery is indicated, it will directly and indirectly reduce the present frightful mortality from Cesarean section."

It is a most commendable work, containing everything new that is fit to go in a book.

H.

Medical Gynecology. By SAMUEL WYLLIS BANDLER, M. D., Professor of Gynecology, New York Post-Graduate Medical School and Hospital. Fourth Edition, thoroughly revised. Octavo of 930 pages with 157 original illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $8.00 net.

Goiter: Non-surgical Types and Treatment. By ISRAEL BRAM, M. D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia, Pa.; Member of the Society for the Study of Internal Secretions, etc. New York. The Macmillan Company. 1924. Cloth, 479 pages.

Manual of the Diseases of the Eye. For Students and General Practitioners. By CHARLES H. MAY, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, etc. Eleventh Edition, Revised. 12mo. 445 pages with 374 original illustrations, including 23 plates, with 73 colored plates. New York. William Wood and Company. 1924. Cloth. Price, $4.00.

1924 Health Education Conference.

The Health Education Division of the American Child Health Association called a conference which met in Cambridge, Mass., June 23-28, 1924, upon invitation of the Department of Biology and Public Health of the Massachusetts Institute of Technology. A summary of the points emphasized included: The personal health of the teacher in service and in training; the personal health of the pupil as presented in a report on the duties of physicians, nurses, teachers and parents in relation to the examination of the child; the principles underlying the gradation of subject matter from kindergarten to college and courses of study for the teacher in training; the functions of the specialist in a school health program; the care of the pre-school child; suggested tests for measuring certain results in health education.

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Editorial

Comments on High Blood Pressure and Guanidine Compounds.

Attempts to solve the problem of hypertension are not altogether satisfactory. The interrelation of anatomical changes in the heart, in the blood vessel wall, in the kidney, as well as in blood constituents, has not been clearly defined. Each of these may enter into the creation of hypertension, singly or in combination. Cardiac hypertrophy, developing upon a cardiac valvular lesion as a compensatory construction in heart work, may be the cause of hypertension. This may bring into play as an associated compensatory mechanical aid the sidewalls of the blood vessels. These two conditions may act as mechanical factors, increasing hypertension in time. Essential hypertension cases, probably arising from this or from syphilitic hyperplasia of tissue in the vessel wall, apparently, for years at least, show increased blood pressure without disclosing by any usual tests of urine the signs of nephritis. But a large proportion of hypertension cases are definitely characterized by a kidney factor in the contemplation of its possible etiology. This kidney factor has a double bearing to which modern medical inquiry is now directing attention. The function of the kidney is intimately connected with this situation. The anatomical changes of nephritis effect a change in the threshold or "sluice-gate" factor of the kidneys. The sluice-gate is raised in nephritis. The blood composition is altered, and unless compensations are made by the body in other ways, the blood ingredients of metabolism become abnormal. Now, the kidney in disease may be disordered in its function by two general ways: first, by change in its power to secrete water and salt; second, by a change in its power to eliminate nitrogenous substances. The threshold of kidney function in nephritis may be raised in one or both of these ways. The hypertension of the hydremic type of nephritis is associated with a different problem from that on which we now wish to comment. The hypertension in nephritis connected with nitrogen elimination has an interesting bearing because of some recent investigations. To this we wish to draw attention because the significance of the suggestions arising therefrom may perhaps serve to add to our knowledge of the causes of high blood pressure.

"Experiments," says Major[1], "show that urea, uric acid, creatin and creatinin have no constant effect on blood pressure. But guanidine bases have a desired effect in producing hyper-elevation of blood pressure. The guanidine metabolite is found in the blood under that undetermined group, non-protein nitrogen, resulting from protein metabolism. It is apparently significant that this metabolite produced elevation of blood pressure, while the urea, uric acid, creatin and creatinin did not." It seems possible, as Major points out, that damaged kidney cells become impermeable to guanidine substances of protein metabolism and become pressor in the activities in the blood upon the tension of the vessels.

In connection with the foregoing observations, the experiments by Major and Stephenson[2] have an interest. These experiments showed guanidine, methyl guanidine and dimethyl guanidine salts produce a marked and prolonged rise in the blood pressure, accompanied by a slowing of the heart and a decrease in respiration. This may have a clinical significance: calcium chloride either alone or combined with potassium chloride reduces blood pressure. In Major's article in the *J. A. M. A.*, the excretion of guanidine bodies in the urine of normal persons and of patients suffering from diabetes mellitus, chronic nephritis, essential hypertension and other diseases, was studied. While under observation these patients were placed on a meat diet. As

1. J. A. M. A., Vol. 83, No. 2, page 81. Relationship between certain Products of Metabolism and Arterial Hypertension.
2. Johns Hopkins Bulletin—No. 400, page 186.

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a result the normal persons and patients with a normal temperature and a normal blood pressure showed an average daily excretion of 100 mg.; while the patients with a high blood pressure showed a marked diminution in the excretion of guanidine bases. Several of his febrile patients showed a marked increase in output of guanidine bases; one patient with a normal blood pressure, showing a severe chronic nephritis, and with a marked protein destruction, showed a high output of guanidine bases.

Major concludes his paper by saying: "In chronic nephritis the damaged kidney is unable to excrete properly urea, uric acid, creatin, creatinin, and that undetermined group of substances resulting from protein metabolism." While urea, uric acid, creatin and creatinin produce no effect on blood pressure, it is interesting to see that guanidine compounds exert such a profound pressor effect.

The Dick Test and Scarlet Fever.

Every doctor should know of the Dick Test. Zingher's article in the *J. A. M. A.*, August 9, 1924, page 432, is a rather full elucidation of this important advance in diagnostic medicine. This is not the place for an elaboration of this paper, but we feel that our readers throughout the state may feel that a quotation of the conclusions of this article is justifiable in view of the importance of the subject so briefly summarized:

Conclusions

1. The Dick test is a reliable index of immunity and susceptibility to scarlet fever.

2. In conjunction with active immunization with scarlet fever toxin, it will help in solving the problem of the control of scarlet fever.

3. It serves to indicate the susceptible persons who need immediate passive immunization with scarlet fever antitoxin. The possibility of interpreting the reaction within twelve hours is of great clinical value for this purpose. In our experience up to the present time, seven of the positive reactors and none of the negative reactors have developed scarlet fever.

4. The Dick test helps in the diagnosis of doubtful cases of scarlet fever. A strongly positive reaction early in the disease and again late in convalescence speaks against the diagnosis of scarlet fever. A definite negative reaction during the first two days of rash should also put one on guard that he may not be dealing with scarlet fever. A negative reaction does not usually develop until the sixth to the tenth day of the disease, at a time when the rash has faded. Two children who had a strong positive reaction on admission to the hospital developed scarlet fever five days later. Both patients gave a negative reaction during convalescence.

5. Other applications of the skin test consist in studying the specific character of the toxin produced by different strains of hemolytic streptococcus. Such studies would be of value in the diagnosis of doubtful cases of scarlet fever; in the classification of clinical conditions caused by the hemolytic streptococcus but not associated with scarlatiniform rashes, and in the identification of normal and persistent carriers of the specific streptococcus of scarlet fever. Patients convalescent from scarlet fever may even be required to be free from the specific organisms before they are discharged from quarantine, if a method of accurate and rapid bacteriologic diagnosis is established.

6. A new impulse will be given by the application of the test to the study of scarlet fever to determine whether the disease includes a single clinical entity or whether, as was long suspected, the clinical conception of scarlet fever includes a variety of diseases with similar symptoms but not necessarily associated with the presence of the specific strains of the hemolytic streptococcus of scarlet fever.

7. Scarlet fever is a combined toxic and bacterial infection, caused by a specific hemolytic streptococcus. The immunity following an attack of scarlet fever is antitoxic and not to any extent antibacterial. This is shown by the fact that convalescent patients, who give a negative Dick reaction, may develop secondary septic complications produced by the specific streptococcus. A permanent antitoxic immunity following the disease explains the freedom from second attacks of clinical scarlet fever. It is possible, however, that subsequent infections without a rash caused by the specific streptococcus may occur in those who have recovered from an attack of scarlet fever. Such infections may also occur in those who give a negative Dick reaction.

8. The diluted toxin keeps well, and can be distributed in this form ready for the test. A control test, consisting of toxin heated at boiling temperature in a water bath for one

hour, has been suggested to identify the pseudoreactions.

9. The results with the Dick test in normal persons indicate that the percentage of susceptible persons by age groups and by social status resembles closely the similar percentage of persons susceptible to diphtheria noted with the Schick test.

10. The application of the Dick test in the early stage of scarlet fever showed a positive reaction in each one of the 141 patients tested. The reactions rapidly became less strongly positive, and were found negative from the seventh to the tenth day of the disease.

11. Of 170 scarlet fever patients tested during convalescence, 158, or 93 per cent, gave a negative Dick reaction. There is some doubt about the diagnosis of scarlet fever in most of the remaining twelve patients, who showed a persistent positive reaction in convalescence. Positive reactions can be brought out in scarlet fever convalescence by using a stronger dilution of the toxin (1:100). It is therefore necessary in making comparative studies to adhere to one standard dilution of the toxin.

12. Active immunization with scarlet fever toxin is a safe procedure, and is not to any extent associated with the development of constitutional symptoms, if the dose of the toxin is gradually increased. The amount is most conveniently increased by the skin test dose, the quantity injected representing 100, 250 and 250 skin test doses for children under 12 years, and 100, 250 and 500 skin test doses for persons over 12 years of age. The injections are given one week apart. The immunity results as shown by the Dick retest seem to be encouraging. A large proportion of the selected individuals show a pseudoreaction, indicating the necessity of adding the control test to the Dick test in checking up on the immunity results with scarlet fever toxin.

13. Purification of the toxin by the sodium chlorid and acetic acid precipitation method gives a preparation that is better for purposes of the test and active immunization, as it eliminates to a large extent the proteins causing the pseudo element in the Dick test and the local reactions as well as the sensitization after the immunizing injections.

14. Treating the toxin with formaldehyd to deprive it of nearly all its toxic properties without impairing its antigenic value seems to be an important further step in the development of the process of active immunization against scarlet fever.

15. The scarlet fever toxin is neutralized in multiple proportions by the antitoxic serum.

News Notes

Let's All Go To Staunton!

The annual meeting of the Medical Society of Virginia is to be in Staunton, October 14-17, inclusive, and we want a large attendance—not only for the good time you will have personally, but also for the enthusiasm which comes from a large gathering. "Nothing great was ever achieved without enthusiasm." Let each member do his part.

Staunton and vicinity possess many natural attractions which have been excellently portrayed in a series of articles in the *Monthly* by Dr. C. M. Blackford. We would especially call attention to the original poem in his article this month, entitled "The Road to Monterey." How can a lover of Nature miss the opportunity to see this lovely road?

The scientific program is to be of a high degree of excellence. Our president, Dr. Chaffin, has been fortunate in securing as his guests Dr. A. J. Ochsner, of Chicago, Dr. John O. Polak, of Brooklyn, and Dr. Daniel A. Orth, of Chicago. The subject for general discussion is endocrinology. This will be treated under various sub-divisions by Dr. W. B. Porter, Roanoke; Dr. P. W. Boyd, Winchester; Dr. W. L. Harris, Norfolk; Dr. Stephen Watts, University; Dr. Daniel D. Talley, Richmond; Dr. John J. Giesen, Radford; Dr. L. E. Stubbs, Newport News. The program will show a number of other excellent papers by our members. You really can't afford to miss this meeting.

Hotel Stonewall Jackson is to be headquarters, and we will have scientific exhibits, as far as space will permit. We are assured there will be ample accommodations for those who attend. If possible, however, make your hotel reservations in advance. Dr. A. F. Robertson, Jr., is chairman of the Local Committee of Arrangements.

Each component society of the State Society should have representation in the House of Delegates. If delegate has not been appointed from your county, see that it is done and send name to the Secretary of Society, at 104½ West Grace Street, Richmond. By the way, don't

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forget this office is always ready to answer any questions, as far as it can, for you.

The meeting will not be lacking in social features for those who wish to combine pleasure with business, so be sure to have your wives and daughters with you. The golf tournament will start at 10 A. M. on Tuesday, the 14th. Those desiring to play in this tournament should communicate promptly with Dr. H. S. Henkel, chairman of the Golf Committee. The golf links will be open to all members of the Society at all times. Several of the schools will give entertainments for the visitors and there will be dances and automobile rides. The Women's Auxiliary of the Society will hold its first meeting on Wednesday, at 10:30 A. M., at Stonewall Jackson Hotel. Urge the ladies in your families to attend this meeting.

You will miss a good time if you do not attend the Staunton meeting. Be sure to be on hand.

Medical College of Virginia.

In spite of increased accommodations for students, it is announced that more than fifty freshmen and a hundred more who wished to enter advanced classes have been turned away from the Medical Department of the Medical College of Virginia. The departments of dentistry and pharmacy had not been filled to capacity at the beginning of this month.

A new chair has been established in the school of medicine, that of neurological surgery, with Dr. C. C. Coleman as professor and Dr. J. G Lyerly as his associate. Dr. H. L. Osterud succeeds Dr. Noback as professor of anatomy; Dr. Charles H. Phillips, recently of Wake Forest, N. C., succeeds Dr. Ward H. Cook as professor of pathology; Dr. H. F. Bascom will be associate professor of anatomy; Mr. L. C. Bird associate in bacteriology; Miss Kate Harman and Manuel Passamaneck assistants in bio-chemistry; Dr. Pauline Williams instructor in pathology; Dr. K. Hosol assistant in pathology; W. R. Bond and H. V. Haag assistants in physiology and pharmacology; Dr. R. W. Fowlkes will be instructor in dermatology; Dr. Charles Bidgood intructor in genito-urinary surgery; Dr. J. Kirk Richardson assistant in gynecology; H. D. Coghill assistant in the department of nervous and mental diseases; Dr. J. G. Terry assistant in nervous and mental diseases; Dr. D. M. Faulkner associate in orthopedic surgery; and Dr. F. W. Shaw associate professor in bacteriology.

Vacations of Virginia Doctors Continue.

Dr. Turner S. Shelton and family, of Richmond, in August went by automobile for a visit to Ocean View and Norfolk, Va.

Dr. P. A. Irving, Farmville, has returned home after a stay at Massanetta Springs, Va.

Dr. and Mrs. J. Kirk Richardson, Richmond, spent their vacation visiting friends at Warrenton, N. C.

Dr. J. S. DeJarnette, Staunton, visited Dr. George W. Brown, of Williamsburg, Va., in August.

Dr. and Mrs. Paul W. Howle were among the Richmonders summering at Mountain Lake, Va.

Dr. and Mrs. B. B. McCluer, Speedwell, Va., recently visited Dr. McCluer's parents at Bon Air, Va.

Dr. and Mrs. H. Norton Mason returned home about the middle of August after a visit to Quebec and other northern places of interest.

Dr. W. G. Trow, Warrenton, Va., spent his vacation with a number of friends in a camping party on the Shenandoah River.

Dr. Garnett Nelson, Richmond, spent the month of August at White Sulphur Springs, W. Va.

Dr. Joseph A. White, Richmond was another of the Virginia doctors at this resort.

Dr. Meade S. Brent, Petersburg, Va., has returned home after a visit to his old home at Heathsville, Va.

Dr. M. P. Doyle and family, of Norfolk, Va., visited relatives in Dinwiddie County, Va., before going on a motor trip to Atlantic City, N. J.

Dr. and Mrs. A. G. Brown, Jr., Richmond, are returning to the city the middle of September, after a motor trip with friends through the North and later a stay at Swampscott, Mass.

Dr. George Snead, Washington, D. C., has been a recent visitor at his former home at Fork Union, Va.

Dr. and Mrs. Armistead L. Wellford returned to their home in Richmond, the latter part of August, after a visit to their son in Pulaski, Va., and later a stay at Mountain Lake, Va.

Dr. and Mrs. Thos. P. West, Bedford, Va., spent a short time in August at White Sulphur Springs, W. Va.

Dr. and Mrs. W. S. Beazley and daughters, Richmond, have returned from a motor trip

to New York. While there they visited Dr. W. S. Beazley, Jr., who recently completed an internship at St. Francis Hospital, Jersey City, N. J., and is now established for further work at the New York Foundling Hospital.

Dr. and Mrs. Preston Hoy, Petersburg, spent their vacation at Ocean View, Va.

Dr. C. V. Montgomery and son, South Hill, Va., have returned home after a fishing trip in Gloucester County, Va.

Dr. Robt. C. Bryan and Dr. Carrington Williams, Richmond, left the latter part of August for Biddeford Pool, Maine, to spend their vacations with their families who have been summering there.

Dr. and Mrs. G. B. Barrow, Clarksville, recently spent sometime at Ferrum and Danville, Va.

Dr. and Mrs. Francis W. Upshur, Richmond, left the latter part of August for a motor trip which included a visit to many points of interest in the Valley of Virginia and in the New England States and Canada.

Dr. and Mrs. S. T. A Kent, Ingram, Va., visited their daughter in Pulaski, Va.

Dr. and Mrs. Frank K. Lord, Richmond, left recently for a motor trip through the New England States.

Dr. Hunter McClung, of Lexington, was a recent visitor at Crozet, Va.

Dr. G. W. Brown, Williamsburg, is home again after attending a meeting of the General Board for Hospitals for the Insane at Marion, Va.

Dr. W. T. Graham, Richmond, spent his vacation in visiting places of interest in Canada.

Dr. N. G. Wilson returned to his home in Norfolk the latter part of August, after a visit to Pulaski, Va.

Dr. and Mrs. Eugene Eggleston have returned to their home in Richmond after a motor trip to Washington, Baltimore, Philadelphia, New York and Atlantic City.

Dr. and Mrs. L. S. Foster, Williamsburg, recently spent some time in Norfolk, Va.

Dr. and Mrs. E. C. S. Taliaferro and family, of Norfolk, are occupying their usual cottage at Crockett Springs, Va.

Dr. Roy D. Adams, Washington, D. C., has been visiting relatives at Harrisonburg, Va.

Dr. and Mrs. A. C. Monroe and family, of Richmond, spent their vacation on a motor trip and, among other places, visited Natural Bridge, Va.

Dr. Paul C. Colonna, formerly of this State, has just returned from a visit of several weeks in Europe and resumed his professional work in New York City.

Dr. Lazarus Karp has just returned to his home in Richmond, after a stay of several weeks in Philadelphia, where he attended medical clinics in electrotherapeutics.

Dr. and Mrs. E. H. Alderman, Williamsburg, are on a trip which includes visits to Washington, Niagara Falls and several places in Ohio.

Dr. George G. Hankins, of Phoebus, who is now at General Hospital, Philadelphia, recently visited friends and relatives in Williamsburg, Va., and vicinity.

Dr. and Mrs. Roshier W. Miller, Richmond, spent their vacation visiting relatives in Pennsylvania.

Dr. and Mrs. U. H. Johnson and sons of Barhamsville, Va., have been the guests of friends in Louisa, Va.

Dr. and Mrs. J. N. Upshur have returned to their home in Richmond after spending several weeks in Gloucester County, Va.

Dr. and Mrs. Charles R. Grandy, of Norfolk, have been spending their vacation visiting in Nova Scotia and other northern places.

Dr. P. G. Hamlin, of the Eastern State Hospital staff, Williamsburg, was a recent visitor in Richmond.

Dr. Sydney J. Baker, Richmond, left recently for New York where he will spend several months studying.

Dr. and Mrs. W. R. Whitman and family, Roanoke, spent sometime in August visiting relatives in Pulaski County, Va.

Dr. Thomas E. Hughes, Richmond, with a party of friends, attended the Horse Show held in Warrenton, Va., late in August.

Dr. and Mrs. Leslie B. Wiggs have returned to their home in Richmond from a motor trip through the Great Lakes' section. They visited a number of the resorts in that section.

Dr. and Mrs. James H. Smith, Richmond, spent sometime in August visiting relatives in Berryville, Va.

Dr. and Mrs. B. B. Dutton, Jr., have returned to their home in Winchester, after a visit to relatives in Middlesex County, Va.

Dr. and Mrs. Lawrence T. Price, Richmond, visited Dr. Price's former home in Botetourt County, Va., while on their vacation.

Dr. and Mrs. W. A. Shephard, Richmond, left the first of September for a stay of several

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weeks at their camp, Wilbodan Lodge, in Bath County, Virginia.

American Congress on Internal Medicine.

Dr. Willian Gerry Morgan and his convention committee have started in, at this early date, to make the biggest kind of a success of the 1925 session of the American Congress on Internal Medicine, which is to meet in Washington next May. Five thousand visiting physicians are expected in the national capital at that time, and the hotel and entertainment committees are even now whipping details into shape for the reception of the guests. The committees hope to make this the most successful meeting in the history of the Congress. The program now being planned is a comprehensive one which will include active participation by every physician in Washington—from the most noted down to the newest interne. It will include every department of the United States Government health service, and the medical heads of the army, navy and Public Health Service are active members of the executive committee.

Dr. Morgan, president of the Congress, who is also general chairman of the convention committee has just announced this revised committee personnel:

Executive — Dr. William Gerry Morgan, chairman; Admiral E. R. Stitt, Gen. M. W. Ireland, Gen. H. S. Cumming, Dr. Hubert Work, Dr. George M. Kober, Maj. William C. Borden, Dr. Phillip S. Roy, Dr. Noble P. Barnes, Dr. Harry C. Macatee.

Program—Dr. William A. White, honorary chairman; Dr. J. Russell Verbrycke, chairman; Capt. A. W. Dunbar, U. S. N.; Col. R. U. Patterson, U. S. A.; Asst. Surg. Gen. E. C. Smith, U. S. P. H. S.; Dr. Frank Leech, Dr. William J. Mallory, Dr. J. Lawn Thompson.

Arrangements—Dr. E. Y. Davidson, chairman; Dr. John B. Nichols, Dr. Thomas A. Groover, Dr. D. V. Stuart, Dr. John M. Ladd.

Publicity—Dr. Wilfred M. Barton, chairman: Dr. James A. Gannon, Dr. A. B. Bennett, Dr. Benjamin F. Weems, Dr. B. M. Randolph.

Entertainment—Dr. Edgar A. Copeland, chairman: Dr. W. Cabell Moore, Dr. A. Camp Stanley, Dr. W. D. Tewksbury.

Hotels—Dr. C. B. Conklin, chairman: Dr. Ernest Mitchell, Dr. A. M. MacDonald, Dr. John A. Foote, Dr. E. G. Seibert.

Transportation—Dr. A. W. Boswell, chairman: Dr. Charles M. Beall, Dr. William Earl Clark, Dr. R. Lyman Sexton.

Ladies—Dr. A. Frances Foye, chairman; Dr. Ada R. Thomas, Dr. Louise Taylor Jones, Dr. Edith SeVille Coales.

Report of Scientific American Abrams Investigation Committee.

In the department of *Analyses, Selections, Etc.*, there appears the report of the *Scientific American* Abrams Investigation Committee. In view of the interest *pro* and *con* the Abrams treatment, we bring this report to the attention of our readers.

Married.

Dr. Paul V. Anderson and Mrs. Alice Boatwright Anderson, of Richmond, Va., August 23.

Dr. Henry Page Mauck, of Richmond, and Miss Harriet Morrison Hutcheson, of Rockbridge Baths, Va., September 10.

Dr. Minor Carson Lile and Miss Elma Chapin Collins, both of Seattle, Wash., the latter part of August. Dr. Lile is a son of Professor and Mrs. William Minor Lile, of University, Va., and graduated from the Medical Department of the University in 1914.

Dr. Marion Howell Watson, Chatham, Va., and Miss Alma Anne Mays, Charlottesville, Va. Dr. Watson graduated this year from the Medical Department of the University of Virginia and was appointed an interne at University Hospital.

Dr. Lucius G. Gage and Miss Margaret Elizabeth White, both of Charlotte, N. C., August 16th.

Dr. R. J. Payne

Is a member of the new City Council of Fredericksburg, Va., which held their first meeting on September 1.

Two Doctors Enter Upon Duties as Mayors.

On the first of September, Dr. J. Fulmer Bright entered upon his duties as mayor of the city of Richmond, and Dr. Julian F. Ward of the city of Winchester.

Dr. Haskell Receives Award.

Dr. C. C. Haskell, Richmond, professor of pharmacology and physiology at the Medical College of Virginia, has been awarded one-half of the research fund of the American Pharmaceutical Association for 1924-1925, in recognition of the excellence of the research work published by him during the past year. The other half of the fund was divided between two scientists from Johns Hopkins and the University of Maryland. Dr. Haskell has been a member of the faculty of the Medical

College of Virginia since 1912 and has published a great deal of research work.

Dr. Holcombe McG. Robertson,

Recently connected with public health work in Virginia, has been transferred to the U. S. Marine Hospital at Chelsea, Boston, Mass.

Virginia Mortality Statistics.

The Department of Commerce announces that the 1923 death rate for Virginia was 1,283 per 100,000 population, as compared with 1,209 in 1922. This increase is largely accounted for by increases in the death rates from influenza, measles, whooping cough and pneumonia. Decreases are shown in death rates from tuberculosis, nephritis and diphtheria.

Dr. William P. McGuire Improved After Operation.

Dr. William P. McGuire, one of the most prominent physicians and citizens of Northern Virginia and an ex-president of the Medical Society of Virginia, is reported as getting along nicely after an operation at Brady Clinic, Johns Hopkins Hospital, the last of August.

Dr. and Mrs. Leland E. Cofer,

Of New York, sailed the middle of August for Europe, where Dr. Cofer will attend the medical section of the League of Nations at Geneva, during the latter part of August and September. Dr. Cofer, now connected with the U. S. Public Health Service, is a native of Richmond and an alumnus of the Medical College of Virginia.

Dr. N. Thomas Ennett,

Richmond, who has been medical director of the Richmond public schools since 1911, has been made full time medical director of the schools, effective September 1.

Urgent Health Matters.

Dr. Ennion G. Williams, State Health Commissioner, has recently sent out two circular letters to the physicians of the State. Every doctor who received these would do well to look them over, for it is "line upon line and precept upon precept," after all, which presses home truths which may seem almost commonplace—so far as the doctor is concerned.

Be suspicious of diphtheria in any case of sore throat and have cultures made. This work is done without charge by the State Board of Health. Remember that diphtheria antitoxin and toxin-antitoxin may be had at cost by physicians.

These letters also lay emphasis on the precautions to be taken in vaccinating against smallpox, which is such a general procedure at this time when schools are opening.

The State Board of Health has just completed the tabulation of history sheets in the first eleven counties in which tuberculosis clinics were held this summer. Of 1,281 patients examined, only 162 were under a physician's care at the time of the examination, while 853 needed a physician's care. All the patients were urged by the clinicians to see their own physicians. The clinicians, of course, do not again communicate with the patients, but the State Board of Health endeavors once a year to remind the patients to keep in touch with their physicians.

Urgent Need of Improved Conditiors in Maternal Welfare.

A nation-wide movement for improved conditions in maternal welfare is being inaugurated through the combined efforts of a joint committee representing the American Gynecological Society, the American Child Health Association, and the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons. The reason for this propaganda is due to the fact that a comparison of the maternal mortality rate of the United States with that of seventeen of the civilized nations of the world shows the United States as having the third highest death rate in sepsis and eclampsia—both largely preventable. It is also claimed that there has been no general reduction in these obstetrical accidents in twenty-five years, though in sections where prenatal care and modern methods of asepsis are observed, the rate is reduced by one-third to one-half.

The organizations working for an improvement in these statistics appeal to societies to stress the subject of obstetrics in the programs of their meetings and try to have more papers and discussions on topics vital to this most essential branch of medicine. Dr. George Clark Mosher, Kansas City, Mo., is chairman of the Committee on Maternal Welfare, representing the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons.

The Southside Virginia Medical Association

Will hold its next regular meeting in Richmond on Tuesday, September the 16th. This meeting is expected to be one of unusual interest, as it is the first time the Association has met in Richmond. Dr. Murat Willis, Dr. C. C.

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Coleman and Dr. A. S. Brinkley constitute the committee of arrangements. Meetings will be held in the Library of the Johnston-Willis Hospital and supper will be served the doctors on the roof garden of the hospital that evening. Dr. George H. Reese, Petersburg, is president and Dr. R. L. Raiford, Sedley, secretary of the Association.

Do You Know of any one Who Should be in this Book?

Dr. W. Moore Thompson, of 1234 Marshall Field Annex, Chicago, Ill., writes that he is compiling a book on "The Doctor in Other Fields" and wishes to make it as representative as possible of our American doctors who have attained fame in fields other than that of medicine. We would be glad for any of our readers to advise Dr. Thompson or this office promptly, giving names of men who are entitled to notice in such a book, together with photos and histories of their lives and accomplishments.

National Research Council Officers.

Dr. Ludvig Hektoen, of Rush Medical College, Chicago, has been elected chairman of the Division of Medical Sciences of the National Research Council for the coming year, and Dr. Victor C. Vaughan, Washington, D. C., vice-chairman. In addition to Drs. Hektoen and Vaughan, the executive committee comprises Dr. Clarence M. Jackson, of the Univrsity of Minnesota, Medical School, Dr. William H. Howell and Peyton Rous, of Johns Hopkins University, Medical Department, and Dr. George W. McCoy, of the U. S. Public Health Service.

Dr. R. M. Slaughter,

Formerly treasurer of the Medical Society of Virginia, who has lived for a number years near Alexandria, Va., has moved to 1430 Rhode Island Avenue, Northwest, Washington, D. C.

A Medical Chautauqua.

The Second Councillor District Medical Society of the Ohio State Medical Association has adopted a rather interesting feaure of securing prominent speakers from the medical profession each year to give a series of lectures. The speakers include some of the best talent in the country and are paid for their services. The audiences are composed largely of general practitioners who in this way take a kind of post-graduate course.

This year the course will be held in Dayton, September 22-26, there being two speakers on each day of the five days. The lectures last from 10 A M. to 5 P. M., with one hour intermission for lunch, and each lecturer has one hour at a time. The speakers this year are: Dr. J. Shelton Horsley, Richmond, Va.; Dr. Stewart R. Roberts, Atlanta, Ga.; Drs. Joseph C. Beck, J. Rawson Pennington, Clifford G. Grulee, and Frank Smithies, Chicago; Dr. W. L. Dunn, Asheville, N. C.; Dr. D. E. Jackson, Cincinnati, O.; Dr. Wm. Engelbach, St. Louis, Mo.; and Dr. Haven Emerson, New York City. They will speak on a large variety of subjects representative of their specialities.

Dr. John B. Bullard,

Richmond, announces removal of his offices to 1100 West Franklin Street, this city.

Dr. Harry D. Howe,

Hampton, Va., has been appointed consulting surgeon at the National Soldiers Home, Va.

Urologist at Lawrence Hospital.

Dr. Charles O. Delaney, of the class of '19, Jefferson Medical College, recently of Gastonia, N. C., has been made a member of the staff of Lawrence Hospital, Winston-Salem, N. C., and will be in charge of the urological department. He succeeds Dr. W. Calhoun Stirling, who recently moved to Washington, D. C., where he will specialize in urology.

Dr. Homer B. Luttrell,

Formerly of Amissville, Va., after a year's internship at St. Francis Hospital, Jersey City, N. J., has located at Bramwell, W. Va. Dr. Luttrell is an alumnus of the Medical College of Virginia, of the class of '23.

A New Chair at Jefferson Medical College.

In recognition of the far reaching developments of bronchoscopy in the diagnosis and treatment of diseases of the lungs and of esophagoscopy and gastroscopy in the diagnosis and treatment of diseases of the esophagus and stomach, the Board of Trustees and Faculty of The Jefferson Medical College have created a new Chair to be known as the Department of Bronchoscopy and Esophagoscopy. Dr. Chevalier Jackson, formerly Professor of Laryngology in The Jefferson, has been elected to the Professorship of the new Department.

Dr. Fielding O. Lewis has been elected to fill the Chair of Laryngology vacated by Dr. Jackson.

Colonel Micaiah Boland,

After spending May, June and July on leave

in the United States, has returned to Port au Prince, Haiti, where he has resumed his duties as Medical Director of the Gendarmerie d'Haiti. Colonel Boland has many friends in this section and has been a member of the Medical Society of Virginia for a number of years.

Dr. Randolph M. Gilliam,

Who has been specializing in surgery at the Mayo Clinic, Rochester, Minn., has located in Knoxville, Tenn., where he will make his future home. Dr. Gilliam is a member of the class of '19, University of Virginia Medical School.

Two Doctors Hurt as Car is Ditched.

Dr. and Mrs. C. T. Carter and Dr. Luther Robertson, of Danville, Va., were hurt in an automobile accident, on the evening of August the 24th, when their car went over a fifteen foot embankment. The accident occurred when they attempted to get out of the way of a car coming at high speed in a driving rain. Their injuries were more painful than serious.

Dr. Tom A. Williams,

Washington, D. C., by invitation will give a series of Mental Hygiene Clinics in Pennsylvania beginning September 15th. These have been arranged under the auspices of the Woman's Welfare Association in Washington, of which Dr. Williams is Director of the Clinic of Nervous Disorders and Mental Hygiene. Associated with him are Dr. K. W. Kinney and Dr. D. D. V. Stuart, while Miss Kathlene Johnson, a Bryn Mawr graduate, the daughter of the Rector of St. John's Church, is in charge of the Social Service.

Dr. James A. Wilkins,

Of Norfolk, Va., announces that he will make frozen sections and microscopic diagnoses of pathological tissues in addition to the practice of internal medicine. He has offices at 550 Monroe Building, that city.

The Valley Medical Association,

At its last meeting held in Harrisonburg, Va., voted to dispense with the scientific part of the program and to hold its Fall meeting in Staunton during the convention of the State Society. They will have a get-together dinner one evening for the election of officers and the transaction of necessary business. Dr. J. M. Emmett, Clifton Forge, is president, and Dr. A. F. Robertson, Jr., Staunton, secretary.

The Southern Medical Association

Will hold its next meeting in New Orleans, November 24-27, under the presidency of Dr. Charles L. Minor, of Asheville, N. C. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., is secretary-manager of the Association.

Dr. Rea Parker,

Smithfield, Va., was appointed by Governor Trinkle as a delegate to represent Virginia at the fifty-fourth annual congress of the American Prison Association, which met in Salt Lake City, August 15-22.

Dr. Fred E. Hamlin,

Of Staunton, Va., is in Philadelphia, where he has recently received appointment as resident physician in the Department of Otolaryngology at the Medico-Chirurgical Hospital, connected with the University of Pennsylvania. He will be at this hospital until July, 1925.

American Proctologic Society.

Upon adjournment of the annual meeting of the American Proctologic Society in New York, June 25th, some twenty of the members journeyed to London on invitation of the English Fellows who are the leaders of the specialty in Great Britain. There, on July 9-11, they met in conjunction with the sub-section on Proctology of the Royal Society of Medicine with Mr. Aslett Baldwin, the president, in the chair. Many interesting papers were read and discussed by members of both societies.

The American proctologists were most lavishly entertained by their Englin hots, from the opening luncheon at the Royal Automobile Club, to the closing banquet at the Hotel Langham.

The officers of the American Proctologic Society elected for the year 1924-1925 are: president, Dr. Frank C. Yeomans, New York; vice-president, Dr. William A. Rolfe, Boston; secretary-treasurer, Dr. Jos. F. Montague, New York.

Health Inspector of Richmond.

Dr. B. B. Bagby, health officer of Henrico County, Virginia, and acting health officer of Richmond since the resignation of Dr. C. C. Hudson, has been appointed chief medical inspector of Richmond, by Dr. W. Brownley Foster, newly appointed director of Public Welfare. Both will enter upon their duties October 1.

Doctors Serve on Committees on National Defense Day.

In addition to the large number of doctors who will serve on mobilization day—Septem-

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ber 12th—in the cities of the State, the following doctors are among those who have been appointed to serve in the counties in which there are no military units: Drs. J. L. Hamner, Mannboro; G. T. Harris, Madison Heights; F. H. Lukin, Pamplin; L. D. Pole, Hot Springs; A. B. Woolwine, Ceres; P. K. Graybill, Fincastle; E. Hale Connelly, Alberta; B. O. Wire, Grundy; C. W. Tucker, Drakes Branch; Thos. G. Pretlow, Chester; R. P. Stryker, New Castle; C. A. Ransom, Falls Church; G. L. Morriss, Buckingham; John G. Broaddus, Bowling Green; John A. Tipton, Hillsville; R. B. Davis, Holdcroft; Otis Marshall, Culpeper; Carter Weisiger, Cumberland; T. C. Sutherland, Tiny; J. N. DeShazo, Center Cross; F. M. Brooks, Swetnam; S. W. Maphis, Warrenton; R. T. Akers, Alum Ridge; J. J. Nelson, Columbia; F. P. Brammer, Callaway; E. L. Caudill, Narrows; D. O. Clements, Ordinary; W. M. Holman, Lee; J. S. Hopkins, Independence; T. J. Stanley, Beaver Dam; C. B. Fox, Monterey; Rea Parker, Smithfield; A. M. Sneed, Toano; V. O. Carruthers, Ferrell; Hawes Campbell, Enfield; T. B. Latane, Stevensville; F. W. Lewis, Morattico; P. D. Pence, St. Charles; John A. Gibson, Leesburg; E. A. Terrell, Fredericks Hall; E. L. Kendig, Victoria; Horace Hoskins, Saluda; W. L. Early, Wolftown; C. C. White, Mathews; W. D. Meeks, Massies Mill; U. H. Johnson, Barhamsville; J. R. Parker, Providence Forge; G. W. Holland, Eastville; L. E. Cockrell, Reedville; F. G. Scott, Jr., Orange; Virgil Hammer, Luray; G. T. Divers, Stuart; T. S. Hening, Jefferson; T. L. Brooks, Oceana; F. W. Hornbaker, Occoquan; J. W. Tipton, Dublin; E. W. Brown, Washington; B. A. Middleton, Emmerton; C. H. Davidson, Lexington; W. A. Vaughan, Timberville; C. B. Greear, Honaker; C. R. Fugate, Clinchport; W. C. Ford, Woodstock; J. D. Buchanan, Marion; H. W. Patton, Hemp; W. D. Prince, Stony Creek; Chas. E. Dyer, Jewell Ridge; J. W. Witten, North Tazewell; W. N. Chinn, Hague; H. M. Miles, Norton; J. T. Graham, Wytheville; L. O. Powell, Seaford.

Dr. Levy Tendered Farewell Party.

On the occasion of his birthday, August the 11th, employees and officers of the Department of Public Welfare tendered Dr. E. C. Levy, a birthday party at Pine Camp Hospital, this city, which was also in the nature of a farewell party. Dr. Levy retires as director of Public Welfare on October 1st, when Dr. W. Brownley Foster, the new appointee, takes his place. On this occasion, Dr. Levy was presented with a silver fruit bowl and a pair of silver candlesticks, and a large birthday cake was cut and refreshments served at a party following the ceremony.

Site Bought for Hospital in Warrenton.

At a meeting of subscribers to the Fauquier County Hospital in Warrenton, Va., this summer, it was voted to buy a piece of property in that town which has been operated for the last year as a private sanitarium, and to equip it for use as a hospital. The house contains twenty rooms and three baths, in addition to a basement. The house will be rented until such time as sufficient funds are in hand to equip and open the hospital.

The American Child Health Association

Will hold its second annual meeting in Kansas City, Mo., October 14-16, inclusive, in the Grand Avenue Temple.

The American Public Health Association follows closely after this with its annual meeting in Detroit, Mich., October 20-22, inclusive.

The Clinical Congress of American College of Surgeons

Will hold its fourteenth annual session in New York, October 20-24, with headquarters at the Waldorf-Astoria. Dr. Albert J. Ochsner, Chicago, is president, Dr. Charles H. Mayo, Rochester, Minn., president-elect, and Dr. Franklin H. Martin, Chicago, director-general. Clinics will be held at the various New York and Brooklyn hospitals during the mornings and afternoons and most of the scientific sessions will be held in the evenings.

The Children's Memorial Clinic of Richmond

Was formally opened for inspection on August the 6th and was opened for work the following day. Dr. Basil B. Jones, of this city, is medical director and head of the pediatric department of the institution. The board of managers is composed of the heads of the agencies doing child welfare work in this city. It will be primarily a diagnostic clinic and will also have a psychopathic department.

Dr. India Hunt,

For the past session assistant in bacteriology and pathology in the Medical Department of the University of Virginia, has been working this summer as State clinician in the Tubercu-

losis Division of the State Board of Health. In January, Dr. Hunt will go to Rochester, Minn., to accept a medical fellowship in the Mayo Clinic.

Dr. A. P. Traynham,

Richmond, has been appointed coroner of Henrico County, Virginia, to fill the unexpired term of Dr. J. Fulmer Bright, resigned.

Health Board of Fredericksburg, Va.

Dr. J. N. Barney has been re-elected city health officer of Fredericksburg, Va., and Dr. Lee Cooke and Dr. F. T. Cassiday have been elected members of the city health board.

Doctors Win Honors Among the Gunners.

At the annual tournament of the Virginia Trapshooters' Association in Roanoke early this month, Dr. W. R. Sherrick, Richmond, captured honors as amateur champion for the State double target trap-shooting, and Dr. L. G. Richards, Roanoke, was the winner of both the amateur single target championship and the amateur all-round championship.

Guinea Pigs For Sale.

Prices reasonable. Apply Health Officer, Newport News, Va. (Adv.)

Position Wanted—

As doctor's assistant, by undergraduate nurse. Three years' experience as assistant to general practitioner. Have knowledge of stenography, bookkeeping and the simpler routine of laboratory work. Splendid recommendations. Willing to start on small salary. Address No. 356, care this journal. (Adv.)

Obituary

Dr. Samuel Wilson Hobson,

Of Newport News, Va., was found dead in his bed on the morning of August the 9th, death having been caused by angina pectoris, according to doctors who examined the body. Dr. Hobson was born in Powhatan County, Va., fifty-three years ago and studied medicine at Medical College of Virgina, from which he graduated in 1891. He shortly thereafter located in Newport News and had since lived and practiced in that city. Dr. Hobson was for a number of years a member of the State Board of Health and, at the time of his death, was physician for the Newport News Shipbuilding and Dry Dock Company and on the medical staff of the Chesapeake and Ohio Railway Company, in addition to being engaged in private practice. Dr. Hobson was a member of his local medical society and had been a member of the Medical Society of Virginia since 1896. He is survived by his wife and a daughter and a large family connection.

Dr. Charles Holdsworth Barlow,

A prominent surgeon of Portsmouth, connected with the staff of the Parrish Memorial Hospital, died July 21st, of a stroke of apoplexy. He was born in Portsmouth, Va., in August, 1877, and, after completing his academic education, studied medicine at the University of Virginia, from which he graduated in 1900. After this, he had service at several New York City hospitals before he located in his native town to practice. Dr. Barlow was a member of the Medical Society of Virginia and a fellow of the American College of Surgeons, a prominent member of the Baptist church and a Mason. He was unmarried but is survived by two sisters and an uncle.

Dr. George Russell Cottingham,

Remington, Va., a prominent physician of Fauquier County, died August 23rd, of chronic nephritis. He was born at Ottoman, Va., 45 years ago and, upon completion of his academic education, studied medicine at the University College of Medicine, Richmond, from which he graduated in 1900. He had been a member of the Medical Society of Virginia since 1901. His wife and three daughters survive him.

Dr. William C. Nunn,

Prominent Confederate veteran, died at his home in Richmond, August 7th. He was born in King and Queen County, Va., eighty-nine years ago, and studied medicine at Medical College of Virginia and Jefferson Medical College, Philadelphia, graduating from the last named college in 1856. During the war between the states, Dr. Nunn served as captain of cavalry and was a prominent figure in many of the engagements. After the war, he resumed the practice of his profession and served the people of King and Queen County and West Point, Va., where he made his home, for more than fifty years, before moving to Richmond several years ago. He was the first Virginia democrat to be seated in the State senate after the war. Dr. Nunn was a Mason and an honorary member of the Medical Society of Virginia. He is survived by a large family connection.

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Dr. Randolph Bryan Carmichael,

Prominent skin specialist of Washington, D. C., died at his family homestead in Fredericksburg, Va., September 2nd. He had been ill at his home in Washington but was carried to Fredericksburg several days before his death with the hope that he might improve. Dr. Carmichael was fifty-five years of age and graduated from Jefferson Medical College, Philadelphia, in 1889. For a time he practiced in New York but later went to Washington, in which place he practiced until his last illness. He is survived by a brother and two sisters.

Dr. James Waddy Davis

Died at his home in Roanoke, Va., August 8th, aged eighty-one years. He was born in Richmond and studied medicine at the Medical College of Virginia, graduating in 1864. During the war between the states, Dr. Davis served in various confederate hospitals in and around Richmond. After the war he moved to Missouri but later returned to Virginia and located in Roanoke, where he engaged in newspaper work.

Dr. Richard Henry Stuart,

Of Stratford, Va., died at his home in that place, August 20th. He was seventy-two years of age and graduated from Jefferson Medical College, Philadelphia, in 1880. Dr. Stuart is survived by his wife and two sons, one son, Dr. R. H. Stuart, Jr., having died several weeks ago.

Dr. Louis Julien Picot,

Littleton, N. C., former superintendent of the North Carolina State Hospital at Raleigh, and ex-president of the North Carolina State Medical Society, died at a hospital in Norfolk, Va., August 14. He was seventy-one years of age and graduated from Jefferson Medical College, Philadelphia, in 1873.

Dr. John Timothy Geraghty,

Of Baltimore, noted urologist and associate professor of clinical urology at John Hopkins University, Medical School, died at the hospital, August 17th, of abdominal trouble, after an illness of several weeks. He was born in St. Paul, Minn., forty-eight years ago and graduated in medicine from Johns Hopkins University in 1903, later studying in Paris and Vienna. In collaboration with Dr. L. G. Rowntree, of the Mayo Clinic, he originated a method for determining functions of the kidneys, which is now used throughout the world.

Dr. Duncan Lee Despard,

Prominent surgeon of Philadelphia, was shot while in his office, on August 5th, by a former patient believed to be mentally unbalanced, and died a few hours later in the hospital. Dr. Despard was fifty-four years of age. He received his academic education at the Episcopal High School, Alexandria, Va., and the University of Virginia, and studied medicine at Jefferson Medical College, Philadelphia, graduating in 1901. He was assistant professor of surgery at Jefferson Medical College.

Dr. Henry M. Argabright,

Of Clare, Va., died at the King's Daughters Hospital, Staunton, June 17, at the age of sixty-eight. Death was due to diabetes mellitus and myocarditis. Dr. Argabright graduated in medicine from the College of Physicians and Surgeons, Baltimore, in 1879.

Dr. Edmond Souchon,

One of the best known members of the medical fraternity in Louisiana, died at his home in New Orleans, August 5th, aged eighty-two years. He graduated from the Medical Department of the University of Louisiana in 1867. Dr. Souchon designed and superintended the erection of the buildings at Tulane University School of Medicine and was emeritus professor of anatomy and clinical surgery of that school. He was for a number of years president of the Louisiana State Board of Health and was prominently identified with the medical interests of that State.

Dr. Bertram Welton Sippy,

Well known for his work on diseases of the stomach and gastro-intestinal tract, died suddenly of heart disease complicating diabetes, at his summer home near Ludington, Mich., August 15th. He was fifty-eight years of age and received his medical degree from Rush Medical College, Chicago, in 1890. For nearly twenty years he had been professor of medicine at Rush Medical College and the University of Chicago.

Mrs. Mary Kemper Spencer,

Wife of Dr. Hunter B. Spencer, of Lynchburg, Va., died at their home in that place August 25th, after an illness of several months. She was a native of Nelson County, Va.